HANDICAPPED SCUBA ASSOCIATION INTERNATIONAL

Forty Years of Service
1981-2021

INSTRUCTOR MANUAL

ACADEMICS

FOUNDED 1981

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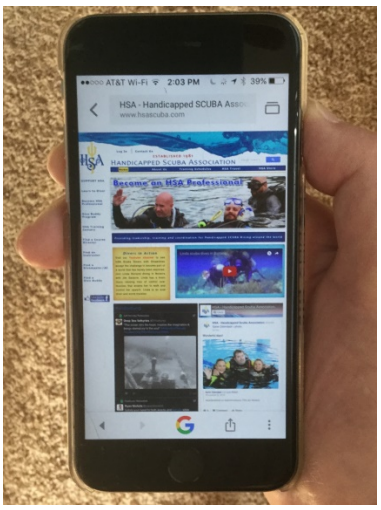

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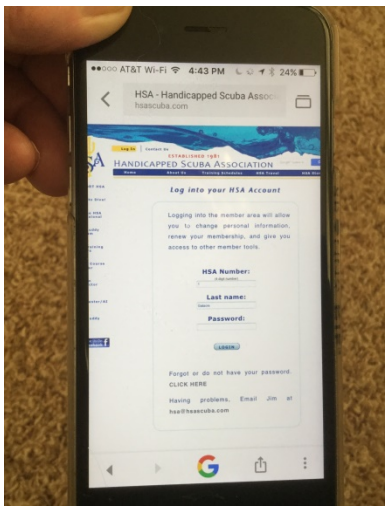

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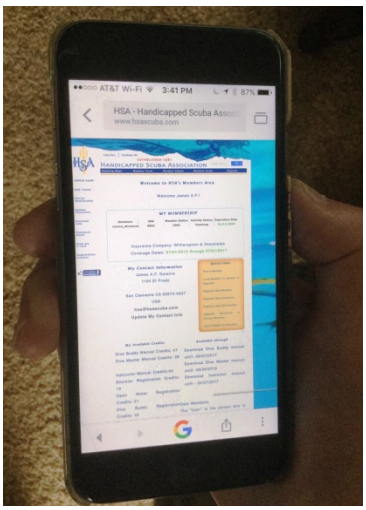

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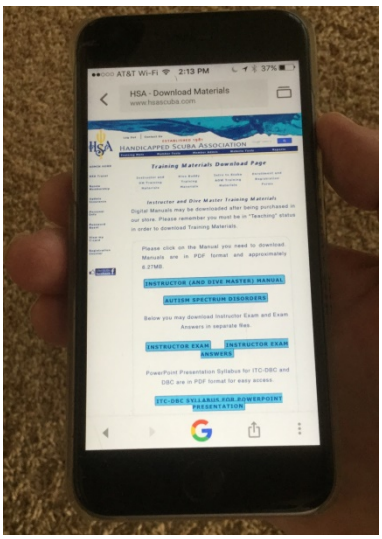

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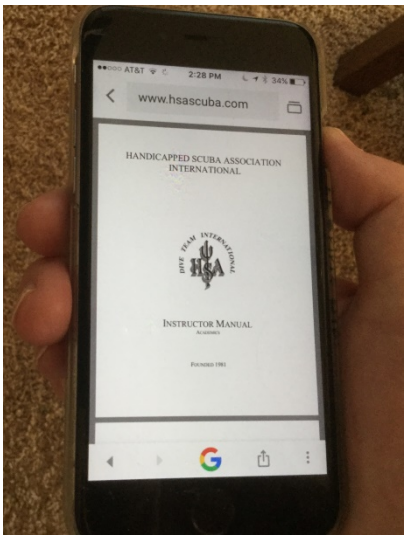

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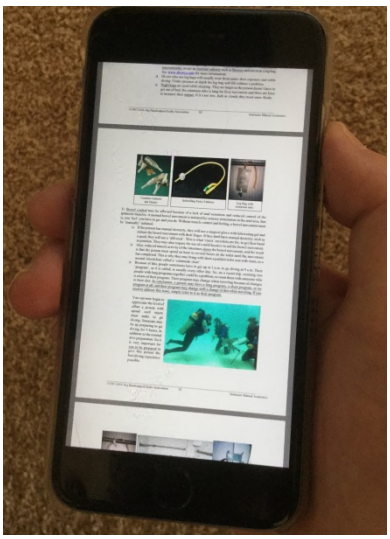

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HANDICAPPED SCUBA ASSOCIATION INTERNATIONAL
INSTRUCTOR TRAINING COURSE

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HSA MISSION STATEMENT

FOUNDED IN 1981, THE HANDICAPPED SCUBA ASSOCIATION HAS BEEN DEDICATED TO IMPROVING THE PHYSICAL AND SOCIAL WELLBEING OF THE ESTIMATED 58 MILLION AMERICANS WITH DISABILITIES, and MILLIONS OF OTHERS AROUND THE WORLD, THROUGH THE EXHILARATING SPORTS OF SCUBA DIVING, SNORKELING & TRAVEL.

MADE UP OF OVER 10,000 SPECIALLY TRAINED UNDERWATER EDUCATORS, DIVE BUDDIES, AND SCUBA DIVERS WITH DISABILITIES, LOCATED IN OVER 40 COUNTRIES, THE HANDICAPPED SCUBA ASSOCIATION's UNIQUE ALL-INCLUSIVE AQUATIC THERAPY & REHABILITATION PROGRAMS ASSURE THAT PEOPLE WITH DISABILITIES HAVE THE OPPORTUNITY TO RECEIVE QUALITY TRAINING, CERTIFICATION AND DIVE TRAVEL ADVENTURES.

The HANDICAPPED SCUBA ASSOCIATION is a Not-For-Profit 501 (c) 3 Corporation

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The First ITC Key Largo Florida taught by Jim Gatacre June 19-20, 1986
Jayne Martin, Susan Papes, Bill Harrigan, Jim Campos,
D.J. Morin, Marie Louise Morandi Long, Bill Batina and Ken Force.

HISTORY & PURPOSE

The founder of HSA is Jim Gatacre, NAUI Instructor #CD-6969. In his own words, "I started diving in 1973 as a result of my own disability and have spent my entire diving career assisting, teaching and sport diving with handicapped students and divers. I have a B.S. degree in Biology from the University of California at Irvine, and taught Marine Biology for two years at the Dana Point Marine Science Laboratory, Orange County Department of Education (California). I founded the HSA in 1981." The HSA's History and Purpose are as follows:

The HANDICAPPED SCUBA ASSOCIATION

- HSA had its genesis in 1975 at University of California-Irvine as a research pilot program looking at self-image changes. All participants, with or without disabilities, were expected to perform all training exercises. Two classes were conducted & the program ended.

- For the first class in 1975 we were unable to find a boat Captain willing to take us out for training dives. HOW FAR HAVE WE COME? Two decades later, the Kona Aggressor Live Aboard yacht was retrofitted to accommodate wheelchair users, then later that same year the FIJI AGGRESSOR was launched, "built" to accommodate wheelchair users, with accessible, rooms, bathrooms and an elevator to the upper decks. Dan Ruth, HSA Instructor #1241, of Live/Dive Pacific in Kailua-Kona Hawaii, did this he said "because it's the right thing to do".

- Formally organized in 1981 as a grass roots teaching and sport diving group for the handicapped. The Handicapped Scuba Association, HSA (USA with an H), was named in the parking lot of US Divers Corp. June 1981 when Gatacre went to pick up the first equipment donation. The donation of 6 Sea Otter BCD's, 6 Aquarius Regulators and 6 Aluminum 80 scuba tanks had been authorized by John Cronin, President & co-founder of PADI, and marks the founding date of HSA.

- By 1982, we were involved with disabled divers workshops conducted by Council for National Cooperation in Aquatics (CNCA), Undersea Medical Society (UMS) and Our World Underwater These workshops formed the basis for the specialized Physical Performance Requirements, which we developed working closely with Walt Hendrick, Sr, NAUI; Dennis Graver, PADI; John Stewart, PADI; and Jim Hicks, NAUI.

- Based on the Physical Performance Requirements the HSA developed a diver Certification Program, wrote two manuals and created the ***HSA Instructor Training Course (ITC)***, the ***Dive Buddy Course***, and a ***Course Director Training Course (CDTC)***.

- The HSA Instructor & Dive Buddy Manuals were written based upon Gatacre's own questions about disabilities, training problems, accessibility issues and the questions asked by other Instructors who were teaching people with disabilities. The HSA Manuals and Physical Performance Requirement**s** have been revised each year since 1986 utilizing input from some of the finest HSA Instructors teaching in over 45 countries worldwide.

- The HSA Instructor/Dive Buddy Training **C**ourse provides instructors and divers with specialized knowledge usually found only in a medical environment. Dive stores, resorts and boats are mainstream settings, where our trained Instructors & Dive Buddies can be very effective in providing DE-INSTITUTIONALIZED REHABILITATION OPPORTUNITIES.

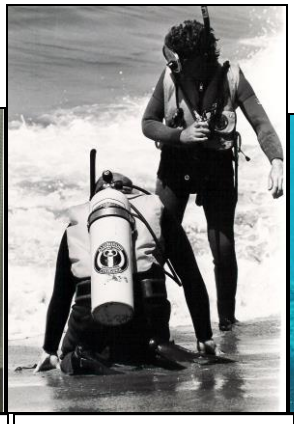
- An INTERNATIONAL NETWORK of specially trained instructors, including over 40 medical doctors, in over forty-five countries. Using this network of HSA instructors we are able to provide an online instructor referral service that matches students to instructors for training, and for open-water completion of training.

- An **A**CCESSIBLE **T**RAVEL **P**ROGRAM and a **R**ESORT **E**VALUATION **P**ROGRAM. In 1984 we contacted Joyce Wiggins of Divi Flamingo Beach Resort on Bonaire and asked them to provide ramps for our first accessible dive vacation. When we arrived, they had installed ramps to most everything. Today, Divi Flamingo Beach Resort is a model for resort accessibility, and is a destination of choice for divers with disabilities from around the world. This was the beginning of our Resort Evaluation Program, and our accessible travel program. We conduct three or four accessible dive vacation trips per year.

- Two films. **"Freedom In Depth"** with Jean-Michel Cousteau features nineteen handicapped divers exploring the waters of California. And **"To Fly in Freedom"** with the Cousteau Society, filmed in Fiji, features Jacques-Yves Cousteau, Jean-Michel Cousteau, the *ALCYONE* wind ship, and HSA divers from Brazil, Japan, the former Soviet Union, Canada, and the US.

- **To Fly in Freedom** is Jean-Michel Cousteau's film. The HSA held a fundraising dinner and dance called "A Caribbean Night with Jean-Michel Cousteau", in 1989. It was very exciting; Jean-Michel was the host, Buzz Aldrin Jr., the second Man on the Moon! came and the two of them met and took pictures with everyone. At the height of the event Jean-Michel said to Gatacre, over the sound system, "the film we made a few years ago is good, but it is getting old. I think we should make a new one, think about it Jim and tell me what you want to do." Since the HSA was by now International, the film would be also.

Astronaut Buzz Aldrin, Jean-Michel Cousteau, and Jim & Pat Gatacre during "Caribbean Night" fundraiser.



Gatacre & Thompson challenge the California Surf. Circa 1981

Accessible dive vacation in Hawaii with Jerry Garcia of the Grateful Dead, Michelle Galler C-0006, and Gatacre.

ITC COURSE REQUIREMENTS OVERVIEW

Lectures (10 hours)

Disability Types:

As Instructors you need a good understanding of the disabilities you will be working with. During the these lectures you will be introduced to anatomy, physiology, psychological effects disabilities have on people, accessibility issues and their relationship to scuba diving. This will give you more confidence and that gives your students confidence in you and makes them more comfortable.

Criteria for Certification:

During these lectures you will learn the HSA certification system, how the performance requirements are applied in teaching, insurance issues and something about the Americans with Disabilities Act.

Training Issues:

During these lectures you will learn about various types of special problem you may encounter, and how to solve them.

Special considerations:

These are topics specific to students with disabilities, subjects you need to know and teach to your students, such as Dive Table concerns, preparation for diving, donning wet suits, best equipment and diving from boats.

Confined Water Training: (5 hours)

You will simulate paraplegia, quadriplegia, amputee and blind diving students, performing skills that are typically problematic for these disability types. As instructors you teach your students dive and solve problems the way you do, so you must experience the problems to gain the tools you need to train your students. (***Pages 75-80 Standards & Procedures***)

Tadeusz conducts Open Water training during his CDTC in Poland.

Open Water Training: (4 hours)

During these exercises you will be in a team of three, an instructor, with a paraplegic and blind student. You will learn the problem solving techniques and logistics.
(***Pages 81-82 Standards & Procedures***)

Final Exam: (2 hours)

The final exam is open book and taken in discussion groups. Each question is to be discussed among the group members before answering. This will help you own the materials.

Mike Cavanaugh, HSA 0079, diving as a paraplegic during his ITC.

Mark Conrad, HSA 0077, leads 'blind' diver Bob Lewallen, HSA 0080, during their ITC.

PSYCHOLOGICAL ADJUSTMENT TO A PHYSICAL DISABILITY

In addition to physical adjustments to a disability there are psychological adjustments as well. As an HSA Instructor it is important to have some understanding of these adjustments so have a greater understanding of your students 'invisible' challenges and motivations.

We begin with background information on terminology, followed by the adjustment stages and how learning to Scuba Dive can help effect a positive adjustment to disability.

DEFINITION OF TERMS: What is a disability, and what is a Handicap?

IMPAIRMENT: An abnormality of body structure, organs, or system function resulting from any cause. Impairments occur at the organ level, such as Spinal Cord and Traumatic Brain Injuries.

DISABILITY: The consequences of impairment in terms of the individual's performance and activity. Disabilities represent disturbances at the level of the person, such as paraplegia.

HANDICAP: The inconvenience experienced by the individual as a result of impairments and disabilities. Handicaps represent the interaction with, and adaptation to the individual's surroundings, such as using a wheelchair and adaptations for Scuba Diving. For example, a paraplegic diver cannot use their legs to swim, so they use their arms and hands with webbed gloves, which is more difficult and less convenient than using fins. *[Note: The origin of the word handicap is in English horse racing. The term was used when talented Jockeys were required to hold their 'cap' under their right arm while racing. They were 'handicapped' for the race.]*

ADJUSTMENT TO A PHYSICAL DISABILITY: What psychology adjustments occur when a person sustains a disability?

A physical disability presents a person with a crisis similar to the loss of a close family member, such as your Mother, brother or spouse. These types of events require a psychological adjustment because of the permanence of the major physical losses and changes they produce.

The process of the psychological adjustment has most frequently been seen as taking place in stages. This process takes approximately two to three years for most individuals, and the stages usually take place in this order.

1. Initial shock and disbelief that this has happened to them.
2. Retreat and denial that the loss is real or permanent.
3. Grief, depression and mourning of the loss of their former physical-self. Many refer to the age of their disability as their real age, such as "I'm 6 years old".
4. Reactions against dependency, pushing away help and expressing anger when help is offered.
5. Eventually there is an ADJUSTMENT based largely upon the ACCEPTANCE of the disability and a RENEWED INVOLVEMENT IN LIFE.

Acceptance and adjustment to the disability are the stages you are most likely to encounter, and this is what learning to Scuba Dive is likely to affect. These terms need to be defined relative to disabilities.

ACCEPTANCE is a matter of arriving at a Value Change in which the disability is seen as inconveniencing, but not discouraging or overwhelming.

ADJUSTMENT to the disability occurs when there is interaction between the person and their environment. Simple interaction, that are taken for granted by most of us, such as shopping, dining out, family activities and sports like Scuba Diving, represent this final stage of rehabilitation.

Only about 20% of those that becoming disabled reach these final stages of rehabilitation.

These stages may not be distinct, may overlap into one another and may reoccur under various conditions.

SCUBA DIVING: How can this help?

NORMAL ACTIVITY: Scuba Diving is a normal activity in a prestigious sport that must be performed correctly. The person must overcome the inconveniences (handicaps) caused by their disability, and successfully practice and learn the skills required for all scuba divers.

CHALLENGES: Scuba Diving, unlike any other sport available to people with disabilities, offers a lifetime of challenge, education and normal socializing. It is a sport that can include their friends and family, and on an equal bases.

REHABILITATION: Scuba Diving challenges the person's disability and creates total interaction with their environment on all levels both physical and social. This is the Final stage of Rehabilitation, interaction with the environment leading to an ADJUSTMENT to their disability.

'The Lively Divers' Don & Gail Lively relaxing in Fiji after diving.

Albert Pruitt, lets go diving! Kona Hawaii

Flamingo Beach Resort on Bonaire, HSA divers gather for dinner out.

POST-TRAUMATIC STRESS (PTSD)

Patricia R Gatacre

PTSD is classified as an anxiety disorder; however the definition has become far more complex as scientists discover more about the condition.

PTSD occurs in response to traumatic events when people experience strong emotional symptoms, such as intense fear, one of the principle building blocks of PTSD, & helplessness, resulting in physical symptoms such as insomnia, anger and flashbacks. Surprisingly most people, between 50-90%, encounter significant trauma at some time during their lives, approximately 8% develop PTSD.

These traumatic events include loss of a loved one, a serious accident, losing a limb, a life-threatening illness and other incidents of actual or potential assault such as, child abuse, rape and military combat. Even seeing other people's trauma is traumatic, particularly when they are emotionally close to us.

Sustaining and adjusting to a physical disability produces many of these emotional symptoms that produce PTSD, such as intense fear, helplessness and a crisis similar to the loss of a loved one.

The rate of PTSD among combat military personnel is considerably higher than it is among the general population. And those exposed to victims of trauma, like Police, Firefighters, Rescue Workers, Medics, EMT's and caregivers, also incur greater risks of PTSD than do members of the general population.

Military Combat is our most well known cause for PTSD, and most understandable, however our combat soldiers suffering PTSD have a lot in common with non-military people that suffer from the effects of PTSD.

Anyone of any age can develop PTSD, from young children to combat veterans – the factor they all have in common is exposure to traumatic events that frighten them to such an extent that their everyday lives are dramatically changed.

However, not everyone exposed to trauma acquires PTSD; research and clinical studies are being conducted to explain why this is so.

The stress symptoms associated with PTSD have a lengthy history extending back to Greek historian Herodotus, who described an uninjured soldier going blind after seeing the death of another soldier. World War I & II combat soldiers referred to it as "shell shock" or "battle fatigue." In retrospect, these terms clearly describe PTSD. Unofficially the designation of 'post-traumatic stress disorder' dates to the mid-1970's but was not formally adopted until 1980.

RISK FACTORS

Much of what is currently known about PTSD came from data obtained by working with Vietnam War Veterans. For example, certain risk factors for PTSD have been identified: war-zone exposure, post-military stressful situations, an unhappy childhood and the severity of the initial traumatic event.

But there are also factors that help protect against PTSD, including being older, having a high school degree, maintaining a good relationship with family and, perhaps of greatest importance, access to stabilizing social support. The scuba culture can provide such support.

SYMPTOMS

PTSD symptoms are usually grouped under three (3) basic symptom clusters: Re-experiencing, Avoidance and Hyperarousal. These are the criteria for PTSD diagnosis.

Re-Experiencing the traumatic event: 'Flashbacks' in which the trauma is re-lived again and again through recurring nightmares and intrusive frightening thoughts. Present-time sensory stimuli, such as talking about the event, a sound or smell, can trigger memories of the causative trauma.

Avoidance (emotional anesthesia): Strategies of behavior, thinking and feeling intended to minimize the likelihood of encountering present-time trauma-related stimuli. These strategies are also used to decrease the intensity of psychological responses to unavoidable events that activate reminders of the initial trauma. Such as;

1. Avoiding situations, places, people, thoughts and even objects where risk is perceived of recalling disturbing events.
2. Consciously trying to separate themselves from trauma-based feelings and memories.
3. Disinterest in activities they used to enjoy & loss of appetite.
4. Memory deficits, difficulty maintaining interpersonal relationships & negative expectations about the future.

Heightened Alertness (Hyperarousal): Feeling tense or 'on-edge' as if anticipating further traumatic experiences; waiting and watching for signs of danger; intensified startle reaction; greater sensitivity to noise; irritability; emotional outbursts (anger, crying spells, panic attacks); impaired concentration; insomnia; agitation; self-destructive behavior (alcohol & substance abuse, suicidal thoughts).

TREATMENT

The sooner PTSD is diagnosed the sooner treatment can begin. It's important for those with PTSD to function within an environment that promotes and provides understanding, safety and emotional support. Interaction with family and friends forge a vital link toward re-claiming one's pre-trauma identity, re-establishing goals and resuming everyday activities.

Recovery requires that negative patterns of thinking and behaving are re-set in order to move past the past and attain new realities. Coping skills can be learned as a means to interrupt emotional reactions to stress that might otherwise trigger PTSD symptoms. Health care professionals can now equip people with methods for reducing and managing fear, one of the principle building blocks of PTSD.

How can Scuba diving help? Scuba diving provides an activity for total interaction with family and friends and the amazing aquatic environment, goals are set and accomplished, and future adventures are readily available through further scuba education and travel. Scuba divers overcome fears associated with diving, breathing underwater, mask removal and emergency procedures such as buddy breathing, all require 'coping methods for reducing and managing fear'.

Appendix D, Page 73: Wounded Warrior Combat Stress Recover Program & Bibliography

SHAPING STUDENT/INSTRUCTOR RELATIONSHIPS

- This is a new social experience. It may be the Instructor's first encounter with someone with a disability, and is most likely the student's first encounter with the world of diving. Both the student and the instructor must adapt.

- What do you do? When should I help? Should I ask what happened? Frequent questions often asked, by almost **EVERYONE**.

HSA Instructor Bob McKane chatting with divers Wendy Crawford and Julia Dorsett.

- Probably the most obvious answer is the most difficult to find. Relate to the personality of the individual, NOT the disability. Treat the disability as a feature of the person, not to be ignored, but certainly not the main feature either.

- If a person looks like they need help, simply ASK them. Most people, handicapped or not, will respond favorably, whether or not they need help. But do ask before helping.

- Something to consider, they may not always assert themselves, fearing loss of support, fearing they'll be too much trouble. Therefore an open line of communication is necessary. HSA has a special form, the STUDENT INFORMATION FORM, which will help establish an "open-line" of communication. This will be covered later.

HSA Instructors Annabelle & Orlando talk diving with HSA divers Pedro Garcia & Bill Bogdan during HSA's Twentieth Anniversary in Bonaire.

DISABILITY TYPES

There are an estimated 58,000,000 Disabled Americans, or 20% of the population; They represent a significant potential market for both scuba instructors and dive travel.

SPINAL CORD INJURY

1. Background Statistics:
   a. There are approximately 10,000 new spinal cord injuries per year, approximately 1 new injury every 60 minutes, the average age is 19 and 2 of 3 are males. Keep in mind that only about 20% of these young adults will completely rehabilitate and reintegrate into society
   b. For the average person receiving a spinal cord injury, the costs are from $100,000 to $500,000 in medical costs by the time they leave rehabilitation.
   c. An additional $1.2 million is spent, on average, over the person's lifetime in associated secondary medical problems, such as pressure sores, bladder infections and bone fractures. (National Spinal Cord Injury Association, founded by the Paralyzed Veterans of America,1948)
   d. Compared to the cost of rehabilitation and secondary medical care, SCUBA training is very inexpensive, while being a very effective rehabilitation tool, significantly helping the person reintegrate into society.

2. Anatomy of the Spinal Cord: Spinal cord diagram, page 11
   a. Why is this important to the scuba instructor? Because spinal cord injuries are described using a map of the spinal column, for example, a T-1 injury, or an L-2 injury are referring to locations on the spinal column. This is common terminology you should be familiar with.
   b. The spinal cord consists of thirty-one regions: eight cervical, twelve thoracic (dorsal), five lumbar, five sacral and one coccygeal. Each has a pair of spinal nerves that serve specific body parts, connecting each area with the central nervous system (CNS), which is the brain and spinal cord.
   c. The spinal cord's core is composed of bundles of myelinated nerve fibers that conduct sensory and motor nerve impulses. The myelinated nerve fibers are similar to an insulated electric wire. The myelin is the insulation, the nerve fiber the wire carrying motor and sensory impulses between the brain and all parts of the body.
   d. The brain and spinal cord are enclosed in the meninges, three (3) layers of connective tissue which are located between the bones of the skull and vertebrae, and the delicate soft tissue of the central nervous system. The meninges protect and nourish the nerve tissue.
   e. The spinal cord is protected by twenty-five (25) bones, called **vertebrae** or vertebral bodies, which make up the vertebral column. The vertebral column protects and supports the spinal cord.

      Twenty-four of the vertebrae are classified into three groups:

      7 Cervical; 12 Thoracic (dorsal); 5 Lumbar

      The twenty-fifth is made up of the five sacral bone segments fused together into one (1) that end the vertebral column. The spinal cord does not extend into this section, it ends in the L1-2, or approximately at waist level (below the bottom of the rib cage), where it fans out into what is called the cauda equina or "horse's tail". The sciatic nerve that runs down each leg is part of the horse's tail.

3. What is a spinal cord injury?
   a. It is a trauma that results in a lesion of the spinal cord that interferes with motor and/or sensory functions in areas below the level of the lesion. A lesion is a harmful change in the tissue of an organ, in this case the spinal cord, caused by an injury or disease.
   b. The lesion can be complete or incomplete. A complete lesion results in the loss of both motor and sensory function. With an incomplete lesion, only a portion of the spinal cord is involved at the site of the injury, in this case there are areas below the lesion that retain sensory and/or motor function.

   c. Complete = loss of motor and sensory function below the injury. "I'm a C-7 complete."
      Incomplete = some loss of motor and/or some sensory function. "I'm a T-4 incomplete".
      Strong Quad = a quadriplegic has upper body function and can push themselves or can stand.
      High Para = T-1 to T-4; loss of muscles in torso resulting in poor balance due to muscle loss, and greater disability.

4. What causes spinal cord injury?
   a. Trauma caused by injury. The most frequent cause of traumatic spinal cord injury in order of frequency are auto accidents, falling, violence and diving into shallow water (as many as 2000 per year).

   b. Infection such as Polio, Multiple Sclerosis (MS) and Guillain Barre

   c. Congenital deformity (birth defects) such as Spina Bifida.

5. Effects of spinal cord injuries are different depending on how it becomes injured:
   a. **Traumatic injury** to the spinal cord may result in loss of motor and/or sensory function, loss of bladder and bowel control, loss of heat regulation, inability to sweat, reduced circulation in affected areas, causing an increased tendency toward chilling and fatigue. Skin can develop ulcers, called decubiti.

   b. **Polio** is a virus that attacks only those spinal nerve cells associated with motor functions. It results in the loss of motor control, usually the lower portion of the body, T-10 and below. Polio does **NOT** affect the sensory functions, such as the ability to feel, to sweat, to regulate heat, or to control bladder and bowel. Circulation is reduced, therefore there is an increased tendency toward both chilling and fatigue, and the potential for developing decubiti.

   c. **Guillain Barre** effects are the same as polio, except that all muscles, arms, hands, torso and legs may be involved. Only motor functions are affected. However this loss of motor function can recover to some degree, leaving behind an overall weakening of the muscles. GB is not a spinal cord injury, rather it affects peripheral nerves.

   d. **Spina Bifida** is a Neural Tube defect (birth defect) that occurs when the vertebrae and spinal cord do not form properly during the first 28 days of pregnancy. The neural tube is the embryonic structure that develops into the baby's brain, spinal cord, meninges and vertebrae. In babies with spina bifida, a portion of the neural tube fails to develop or close properly, causing defects in the spinal cord and vertebrae, usually in the lumbar region (low back).

In the USA there are approximately 1,550 to 2,000 babies born each year with Spina Bifida, and an estimated 166,000 individuals with spina bifida live in the United States. There are approximately 4.7 million people with spina bifida worldwide. It is one of the most common birth defects.

There are three types of Spina Bifida:

1. Occulta, which means hidden, is the mildest form, results in a small separation or gap in one or more vertebrae. Spinal nerves are usually not involved and some people don't even know they have it. In some cases there is a tuft of hair and/or birthmark in the low back.
2. Meningocele (muh-NIN-juh-seel) results when the protective membranes around the spinal cord, meninges, are pushed through one or more gaps in the vertebrae. The spinal cord is not involved so there is less likelihood of nerve damage, but it is possible.
3. Myelomeningocele (my-uh-loh-muh-NIN-seel) results when the spinal canal, the opening in the vertebrae that the spinal cord runs through, is open along several vertebrae in the lower and/or middle back. The meninges and spinal cord are pushed through these openings in the vertebrae. The spinal cord is involved increasing the likelihood of nerve damage.
    - Hydrocephalus, excess cerebrospinal fluid surrounding the brain, may affect 90% of children with myelomeningocele causing learning disabilities and seizures disorders.

Symptoms of spina bifida vary by type and severity, and can also differ for each person. In mild cases there are no functional disorders, however in more severe cases it may result in loss of motor and/or sensory function, bladder and bowel control, and reduced circulation. Reduced circulation causes both an increased tendency toward chilling and fatigue and the potential for developing decubiti.

Because of risks involved due to possible learning and seizure disorders, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In some cases it may be inadvisable to SCUBA dive, but for many it can be a challenging and exciting recreational activity.

6. Classification of spinal cord injury disabilities: Quadriplegia, Paraplegia and Hemiplegia
    a. **Quadriplegia**: This term generally refers to all four limbs being involved. Quadriplegia occurs when the spinal cord is injured in the cervical area, C-7 through C-1.
        1) Injuries occurring at C-7 through C-1 may result in impairment of the respiratory function, (ability to breathe), thermoregulation (ability to sweat) and mass reflex (full body stiffening).
        2) Inhaling requires the use of a combination of four Respiratory muscle groups.
            - DIAPHRAGM, the *MAIN* muscle used in breathing, is a strong dome-shaped muscle separating the abdominal and chest cavities.
            - INTERCOSTAL MUSCLES between the ribs, expand the ribs when inhaling.
            - NECK MUSCLES are used to expand your upper chest when inhaling.
            - ABDOMINAL MUSCLES are used to breathe deeply and to cough.
        3) The brain sends signals through the spinal cord to control the four respiratory muscle groups. The level and severity of the injury determine the extent of respiratory loss.
            - C-6 to T-12 may lose control of the Intercostal and Abdominal muscle.
            - C-3 to C-5 may lose control of the Diaphragm muscle group.
            - C-3 to C-1, many lose control of all four muscle groups and require a ventilator.
        4) If respiratory function is reduced, the person can be a candidate for SCUBA instruction, however if a ventilator is required, the person is not eligible. Example: Craig, a C-3 quad, has reduced respiratory function, and severe mass reflexes, but is fully capable of diving with proper training and assistance. Case history page 12
        5) Injuries occurring at C-5, C-6, and C-7, the individual can usually care for themselves', however, because of the involvement of the arms, and respiratory function, abilities can vary greatly.
        6) Below the level of injury the LOSS OF HEAT REGULATION, the ability to sweat, may occur. On a warm day they may overheat much faster, application of moisture with fanning will compensate. It is very important to be prepared and openly discuss this with the student.

7) CASE HISTORY: Craig

"Injuries C-4 and higher do not necessarily mean they are unfit for SCUBA diving. For example, Craig is a C-3 quadriplegic, completely paralyzed, he can only move his head. He has mass reflexes so sever he must use a wheelchair that, with a flick of a lever, will extend into a flat bed, and has reduced respiratory function. He is so disabled he has two attendants with him at all times. Think for a minute how frustrating it must be to require assistance with all of your normal day-to-day activities, to never have privacy when you eat, bathe or even when you use the toilet. Craig wanted to Scuba dive, and frankly I thought it was impossible. Denise, HSA CD10-0010, put him on Scuba in a pool and he did well. So, he came to Grand Cayman with the HSA and I took him on his first open water scuba dive.

It was stressful for me, but we did it, a 20ft/6m scuba dive for 20 minutes, stationary on a descent line. A couple of interesting things happened. First he kept crossing his eyes, it was clearly a signal of some sort, but I did not know what he meant. I thought, he must mean "This is Great!"!!, so I gave him a smile and a hardy OK signal. Back on the surface, he asked 'Why didn't you clear my ears? I kept looking at my nose!!"

"OK", I said. "We must get our signals straight before we dive. By the way what do you think would happen if you were to have a MASS REFLEX while underwater?" "I was having a MASS REFLEX the whole time we were down!" he replied. So as it turned out, we did not, and do not, have to be concerned about Mass Reflexes, but we do have to be concerned with SIGNALS.

Craig went on to earn an HSA C-Level certification, and has traveled to several excellent dive destinations with us. In an interview, Craig was asked what he got out of scuba diving. He replied that the diving was great, in fact he had been a diver before his injury and said that he got as much out of diving now as he had then. But the GREATEST thing about diving was SOCIALIZING, being with people both able-bodied and handicapped, eating, drinking, talking about the dives, normal socializing.

Something he had lost, he regained with diving!

Craig Casperson, C-0278, and Dive Buddy Daryl Plude, diving in Akumal, Mexico

Craig enjoys the afternoon with new friends in Playa del Carmen, Mexico.

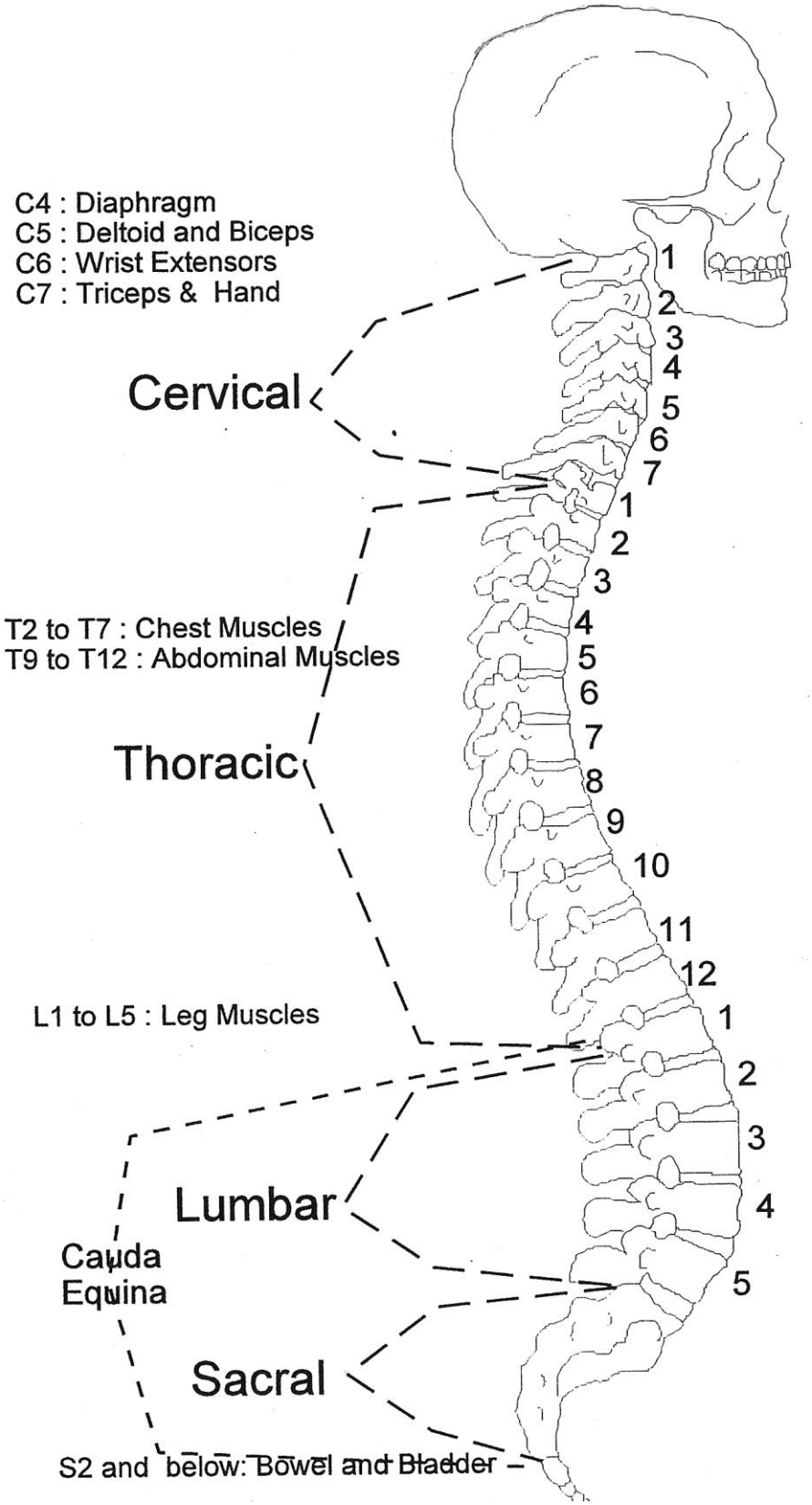
A person with a spinal cord injury may be paraplegic or quadriplegic. This drawing represents a side view of the spine. The vertebrae are labeled with numbers. The spinal nerves corresponding to each of the vertebrae lie just below each vertebra. The muscles and organs controlled by various nerves are listed on the left.

A **paraplegic** is a person whose lower extremities and part of their torso are paralyzed as a result of injury or disease of the spinal cord.

A **quadriplegic** (also called tetraplegic) has in addition to paralysis of the legs, and torso, the hands and partial paralysis of the arms.

Most paraplegics and quadriplegics have a loss of sensation below the level of injury and loss of controlled function of the bladder and bowel.

A spinal cord injury disability is generally spoken of according to its location, for example, C4-5 quadriplegic. Paraplegia results from injury at the T1 level or below and quadriplegia results from injury at the C7 level or above.



8) Due to arm involvement quadriplegics may need assistance in transferring from their wheelchairs, swimming and using equipment. CAUTION: When assisting with a transfer, DO NOT DO IT ALONE. Get someone to help you. It is easy to seriously injure your back when lifting someone improperly.
9) Quadriplegics can have a low cough response; and choking on water could cause them to suffocate. If coughing occurs, demand that the person talk to you. Anxiety causes the cough response to tighten up. Talking helps reduce anxiety. Performing a "quad cough" may be necessary if the person does not recover. A "quad cough" is basically a Heimlich maneuver. In over 30 years of teaching and diving with people with low cough response, Gatacre has never encountered anyone needing this type of assistance.

b. **Paraplegia** generally refers to lower limb involvement. Paraplegia occurs with injuries at the T-1 through L-2 area of the spinal cord.
1) Injuries occurring at T-2 and T-1 may result in the reduction of respiratory function (the ability to breathe), thermoregulation (the ability to sweat), and mass reflex (full body stiffening). The same precautions required for quadriplegics would also be needed.
2) Complete or partial motor and/or sensory function may be lost for the entire torso through the lower extremities, depending on the location and nature of the injury; therefore, abilities vary to a large extent. Some may be able to walk in braces or even without aids. Those with high injuries, T-1 to T-6, may have loss of torso control affecting balance and mobility, creating significant disability.
3) Reduced circulation increases tendency toward chilling and fatigue therefore, the same precautions must be taken as for quads.

c. **For both quadriplegia and paraplegia**
1) The reduced circulation slows down the healing process, creating problems that include Decubiti. These are ulcers that can take months to heal, and even cause hospitalization.
- Causes: Bruises, burns, abrasions, and pressure sores from sitting too long.
- Sources: Dragging unprotected feet and legs on pool or open water bottoms, bruises, sun burns, even on overcast days, and sitting on hard surfaces or from just sitting for long periods of time. Sitting on a hard surface for a "brief" period of time can cause decubiti. This is why their cushions are so important to them, it protects them from decubiti. Cushions can cost over $400.
- Remedy: Protect cushions from loss and moisture, and be sure it is always available to them. Be sensitive to a persons need to 'get off their butt' at regular intervals. Many cannot feel their limbs, so a diver must always wear protective clothing on their legs and feet. (Note: socks can be pulled off unnoticed).

2) Bladder control in most cases will be affected. In which case a catheter and urine collection bag, commonly called a leg bag or bladder bag, may be worn.
- Males use a leg bag, attached to either an external condom catheter commonly called a gizmo, or to an indwelling catheter. For quads, because of hand involvement an indwelling catheter may be more convenient. Finally, they may catheterize intermittently and not wear a leg bag.
- Females can use a leg bag with an indwelling catheter, or catheterize intermittently, or use an external catheter such as Shewee and not wear a leg bag. See www.shewee.com for more information.
- Divers who use leg bags will usually wear them under their exposure suit while diving. Under pressure at depth the leg bag will fill without a problem.
- Night bags are used while sleeping. They are larger so the person doesn't have to get out of bed, the extension tube is long for freer movement and there are lines to measure their output. If it's too low, dark or cloudy they need more fluids.

Condom Catheter
aka Gizmo

Indwelling Foley Catheter

Leg Bag with
extension tube.

3) Bowel control may be affected because of a lack of anal sensation and reduced control of the sphincter muscles. A normal bowel movement is initiated by sensory stimulation in the anal area, that is, you 'feel' you have to go, and you do. Without muscle control and feeling, a bowel movement must be 'manually' initiated.

- If the person has manual dexterity, they will use a surgical glove with lubricating gel and initiate the bowel movement with their finger. If they don't have manual dexterity, such as a quad, they will use a 'dill stick'. This is what 'risers' on toilets are for, to get their hand in position. They may also require the use of a mild laxative to aid the bowel movement.
- Also, reduced muscle activity of the intestines slows the bowel movement, and the result is that the person must spend an hour to several hours on the toilet until the movement has completed. This is why they may bring with them a padded toilet seat with risers, or a second wheelchair called a 'commode chair'.
- Because of this, people sometimes have to get up at 3 a.m. to go diving at 9 a.m. Their 'program', as it is called, is usually every other day. So, on a resort trip, rooming two people with long programs together could be a problem, so room them with someone who is aware of their program. Their program may change when traveling because of changes in their diet. In conclusion, a person may have a long program, a short program, or no program at all, and their program may change with a change of diet while traveling. If you need to address this issue, simply refer to it as their program.

You can now begin to appreciate the level of effort a person with spinal cord injury must make to go diving. Someone may be up preparing to go diving for 5 hours, in addition to the normal dive preparation. So it is very important for you to be prepared to give this person the best diving experience possible.

Night Bag, larger volume & tube

Accessible bathroom with grab bars, properly positioned toilet paper holder and toilet seat with risers.

Commode Chair for shower & personal care

4) Exaggerated reflexes may be experienced by both quadriplegic and paraplegics. Caused by spinal reflexes that result in knee jerks, leg stiffening and mass reflex of the whole body, they may last for one or two minutes. This is good for muscle toning, but sometimes the spasms are painful and very inconvenient. The diver may be taking muscle relaxants such as Valium or Flexural.
5) Low blood pressure, called Orthostatic Hypo-tension, results from a 'slower adaptability' to changes in bodily positions, as when the diver is raised to a sitting or standing position.
   - Most likely to occur with injury levels T-2 and above.
   - Symptoms: Light headed, dizziness, feeling faint, and loss of consciousness.
   - Remedy: Lay them down with their feet-above-the-heart until they recover, then raise them back up more slowly. Easily solved in most cases.
6) High blood pressure, called Autonomic Dysreflexia or Hyperreflexia, is a phenomenon seen in persons whose injuries are above T-6 levels.
   Cause: It is caused by reflex action to some 'irritable stimuli' such as distended bladder, fecal mass, thermal and pain stimuli.
   - Symptoms: Perspiration, especially of the forehead, pounding headache, goose bumps, nasal congestion, and fast then slow pulse.
   - Examples: Extremes such as overheating and hypothermia can result in Hyperreflexia. During a dive the core temperature can drop, especially on dive vacations when there are multiple days of diving, and a diver could experience hyperreflexia to some degree. A headache after or during a dive is probably a symptom of hyperreflexia, and the diver should be treated by warming them up.
   - Treatment: Place the person in an upright position to reduce blood pressure, bladder should be drained, possibly bowels should be cleared (if overeating, like we do on dive trips). Check for unnoticed injury (pain) such as a toe bent back in the booties, testicles improperly positioned, or sitting on an uncomfortable object. People generally recognize the symptoms of Autonomic Dysreflexia quickly and will begin looking around to find what is causing it. It happens fairly often, but it is easy to remedy in most cases by simply removing the cause.
   - Additional TEMPORARY treatment: use a rapid acting vasodilator such as amyl nitrite. When blood pressure goes up the arteries are constricted, when dilated the blood pressure reduces.
   - High blood pressure is a medical emergency. If the blood pressure does not return to normal quickly, seek medical help.

NOTE: You are NOT expected to be a health care provider. People with SCI will know how to care for themselves; this is part of the rehabilitation they receive. Your knowledge of these issues will increase your sensitivity to their special needs, increase your confidence in providing for them and will therefore increase your Students comfort level in discussing these issues with you. Although they are familiar with their own personal health care under normal circumstances, these are new circumstances requiring adaptations. You should be prepared and available for consultation regarding these new adaptations. So, it is important that you understand their special needs.

The HSA film 'Freedom in Depth' clearly demonstrates the abilities of divers with a variety of disabilities, and the diving techniques used by them. Appendix H; Read this document while watching film for maximum education in handicapped diving techniques.

d. **Hemiplegia** refers to one side of the body being affected.
   1) Hemiplegia is usually the result of brain trauma, caused by a stroke, blood clot, embolism, or traumatic injury. It is rarely caused by spinal cord injury due to polio or trauma, but it does happen.
   2) Because brain trauma is usually involved, there may be additional disabilities such as seizures or learning disorders.

Linda, center, on her way to dive at Capitan Cook's Monument, Kona Coast Hawaii.

Linda meets bird on the way to Altun Ha, Belize. Linda's disability is the result of a traumatic brain injury (TBI)

HSA members exploring Altun Ha, a Mayan ruin in Belize, during one of our annual Accessible Dive Adventures.

Nicole, between dives, soaks up the Sun and ambience on the pier at Journey's End Resort in Belize. Her disability is from TBI. Journey's End Resort is accessible.

HEAD TRAUMA, TRAUMATIC BRAIN INJURY (TBI)

1. Overview
   a. TBI (Traumatic Brain Injury) accounts for 140,000 deaths per year. Of those who survive 50-70,000 are left with an intellectual impairment of such a degree as to prevent them from returning to a normal life. Two thirds of the people who sustain head injuries are younger than 30 and are primarily the victims of auto and sport accidents.
   b. Brain damage can also result from diseases such as meningitis or a stroke.
   c. Because of the prevalence of TBI and the fact that there are often no observable symptoms, it's spoken of as The Silent Epidemic.
   d. There are two ways the brain becomes damaged from a head injury:
      1) Localized injury that results in damage to a specific area of the brain.
      2) Contrecoup, when the brain is bounced around inside the skull causing neural damage to a number of areas of the brain.
2. Symptoms of head injury:
   It's common for there to be physical disabilities, impaired learning ability and personality changes. Each case is different, and people with similar injuries may exhibit symptoms that are dissimilar.
   a. Physical impairments can include speech deficits, sight impairments, hearing loss, headaches, coordination, and paralysis of one or both sides of the body and seizure disorders.
   b. Cognitive Impairments can include short or long term memory loss, slowness of thinking, concentration skills, reading and writing skills, planning, sequencing and judgment.
   c. Behavior & Emotional Impairments: Mood-swings, anxiety, depression, difficulty with emotional control (angry outbursts are common), and difficulty relating with others.
   d. A person with a cognitive or communication deficit may become frustrated and anxious when expected to perform in a normal learning situation. Some points to consider when instructing cognitively impaired students are:
      1) Present materials in a structured way and be consistent in what you want them to learn. Repeat things as many times as necessary for them to understand and remember. If the situation demands it you can devise rhymes to teach them and help them remember.
      2) Be patient. Do not rush the individual to reply, you must allow extra time for them to arrange their thoughts and respond to what you're asking of them. Any indication of impatience will stress and confuse them.
      3) Do not over stimulate them, cognitively impaired brain damaged people often deny their deficiencies and may try to mask signs of mental and physical fatigue.
      5) Set short-range goals, view their progress in small increments and give frequent encouragement. Ask questions and have confidence in their ability to answer them.
      6) Permit them as much independence as is safely possible. Some specialists believe it is imperative for brain damaged people to be provided with challenges and responsibilities to rebuild self-worth and social involvement.
      7) Students that cannot demonstrate good understanding of academic materials may be eligible for C level certification with conditions. (See Pages 4 & 5 Standards & Procedures)
      8) These principles are applicable to every student who is mentally, emotionally or developmentally handicapped and needs special training and/or supervision.

      Because of the risk due to possible impaired memory, impaired judgment, and seizure disorders, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In many cases, it may be inadvisable to scuba dive.

DEVELOPMENTAL DISABILITIES

Dr. Natan Cohen, MD HSA Israel

1. Overview:
   Intellectual disability is a multi-factorial trait, which means that more than one causative agent can be associated with the clinical and behavioral manifestations. It is defined and classified by its end result, the ability to perform on psychological tests. But, this classification, based mainly on academic skills, has little to do with social behavior, leisure and vocational potential.

2. The classification into borderline, mild (IQ 50-70), moderate (IQ 35-49), severe (IQ 20-34) and profound (IQ <20) intellectual impairment is not perfect. The classes overlap and vary greatly between tests. If one excludes the academic skills it is safe to assume that people who are classified as borderline and mildly intellectually impaired are only slightly handicapped (if at all). Some high functioning moderately intellectually impaired people might prove to be perfectly capable of leading an almost independent lifestyle. They might need guidance in a sheltered environment but if properly trained will perform very well even in stressful situations.

3. Common causes: Specific causes are determined in only 25% of the cases.
   Trauma to the developing brain such as intracranial hemorrhage or lack of oxygen before, during or after birth. Infections occurring during pregnancy, at birth or after birth such as congenital rubella, meningitis, encephalitis and HIV. Toxic exposure such as alcohol, cocaine, amphetamines and lead poisoning during pregnancy. Metabolic disorders such as hypoglycemia. Chromosomal abnormalities such as errors in chromosome numbers that cause Down's syndrome. Malnutrition.

4. Associated manifestations: Intellectual impairment is sometimes associated with other symptoms, like motor and balance disturbances, epilepsy, endocrine disorders (most commonly diabetes and symptoms caused by abnormal secretion of thyroid, parathyroid, growth hormones and steroids), urinary tract abnormalities and infections, cardiac and vascular malformations.

5. Incompetent is the legal term for someone who, due to intellectual or emotional disability, is in the custody of a parent or legal guardian, and cannot sign a legally binding document.

6. Not every person who is intellectually impaired will be able to dive. It is imperative that they are thoroughly checked by a skilled physician to make sure they are physically fit. They must also be professionally evaluated for their ability to master and remember basic skills even when under pressure. However, diving can be a tool of great benefit to their social and vocational habilitation. Those who can should not be prevented from diving only because they are intellectually impaired.

7. The main concern about diving with intellectually and emotionally handicapped people is the difficulty in predicting their reactions. Hence, a person who is formally defined as intellectually disabled (I.Q. less than 70), even if medically fit and able to adequately perform the HSA Physical Performance Requirements, would be eligible only for a C level certification with conditions. The conditions are; they will be certified to dive with two buddies, one of whom is an adult of the parents' or legal guardians' choice, who knows them well and can predict their reaction.

Autism Spectrum Disorder (ASD)

Stewart W. Snyder III, HSA Course Director # 09

1. Overview:

Autism and ASD are general terms for a group of complex disorders of the brain. All autism disorders are merged under one umbrella diagnosis of ASD. They are recognized as distinct subtypes, (a) Autistic disorder (most severe), (b) Pervasive development disorder-not otherwise specified [PDD-NOS] (severity between Autism and Asperger) (c) Asperger syndrome (high-functioning autism).

ASD is a neuro-development disorder characterized by (a) impaired communication (b) social interaction and (c) by restricted and repetitive behavior. Autism (ASD) affects information processing in the brain by altering how nerve cells and their synapses connect and organize.

ASDs affect one out of every 68 children in the United States, 2 per 1000 individuals worldwide. It occurs 3 times more often among males than females. Every person with ASD has their own pattern of autism. Approximately 40% have average or above intellectual abilities. Source WebMD

People with autism (ASD) may be highly sensitive to their senses & how they react to them.

- Hearing may be hyper sensitive to loud sounds, or many sounds at the same time, causing some to put their hands over their ears, others may scream.
- Sense of smell may be highly sensitive. Every day smells may be sickening to them.
- Their eyes may be sensitive to light. Light flickering off water may be very disturbing to them.
- If there are many objects to focus on, it may cause them to look at things with tunnel vision.

One thing is sure early detection is very important because early treatment can help a child with autism make significant gains in language and social skills. Studies show that early intensive behavioral intervention improves learning, communication and social skills in young children with autism (ASD).

Case history: Stew Snyder HSA CD09-1050 New Jersey, USA

One young lady (Scuba Student) with autism spent over 6 hours, over many days, just to learn how to recover her regulator properly. Once taught, she was able to recover and clear it every time. She was 14 years old at the time she was certified. Thirteen years later at age 27, she travels all over the world scuba diving with her dad. Stew has certified 3 divers with Autism.

2. Working with Autistic (ASD) children and adults, can be a very rewarding experience. Take your time, and meet with the Autistic (ASD) person before you get them in the pool or classroom situation. Talk to their caregiver about their likes and dislikes, and explain that the goal for scuba is to have fun.

- Tell the person what behavior you want and be specific. Praising them for doing something doesn't tell them what you want. Tell them why they should or shouldn't do something.
- Use NO sparingly and don't use sarcasm or metaphors, they may not understand them.
- Show them how to do something rather than just telling them, and show them many times.
- Some may be sensitive to touch, such as water or a mask on their face. Take your time working out these problems. You may start by splashing water on your face or pouring water over your head, showing them that it doesn't hurt you.

Case history: Rocky Clark HSA I-3501 United Kingdom

"Just thought I would give you a quick update about our (autistic) trainees, Eli and Tommy. Both are doing fantastic and are currently doing their open water dives, with drills. Surprisingly they have taken to it better than some able bodied divers, and it would appear their autistic/learning disabilities make it easier for them to take on board the exercises and drills due to the routine nature of each one." Eli earned her Open Water Scuba Diver C-level with Conditions Certification!

CEREBRAL PALSY

1. Overview:
   Cerebral palsy is a disorder of the 'Motor Centers' of the brain. It is the result of damage to the developing brain, it is non-progressive but frequently changing, and is characterized by loss or impairment of control over voluntary muscles.

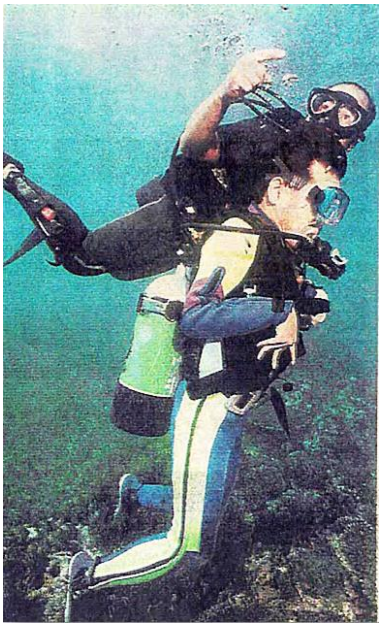
2. Common causes:
   a. During pregnancy: viral infections, brain hemorrhage, and premature birth.
   b. Early years: encephalitis, meningitis, measles, and TBI are some of the leading causes.

3. Symptoms vary greatly. 1 in 7 people have symptoms so mild that they fit into normal society. Yet others have symptoms so severe that they require constant care. Cognitive disorders are common, and seizure disorders may also be part of the disability.

4. Five characteristic forms:
   1) Spasticity is the most common, accounting for over 50% of the cases.
   2) Athetosis, constant recurring series of slow involuntary movements.
   3) Tremors, more severe form of athetosis.
   4) Ataxia, lack of balance, due to in-coordination.
   5) Rigidity, resistance to limb movement.

5. Many of those with cerebral palsy are mentally incompetent, with 50% mentally deficient and 25% dull-normal, however 25% are normal and above.

6. Cold weather, cold water, cold of any kind, and anxiety increase symptoms.
   Example: An HSA student with CP had rigidity as part of his disability. When he was about to enter the water he would become completely stiff, unable to bend at the knees and hips.



7. CASE STUDY: During an ITC on Amami-ooshima, Japan (an Island), a young man with severe Cerebral Palsy was included in the course for the Instructor hands-on teaching experience. The ITC candidates got him into the pool and underwater. Poor control of his jaw muscles were intensified by anxiety and he chewed-up his regulator mouthpiece. After two tries he was removed from the pool and we believed he would not be able to dive. However, he had them bring a bucket filled with water, and set a Scuba unit next to him. He put the regulator in his mouth, stuck his head in the bucket, and through his determination gained control over his jaw muscles. He made three open water Scuba dives during the ITC, and later earned an HSA C level certification.

8. Because of risks involved due to possible cognitive and seizure disorders, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In some cases it may be inadvisable to SCUBA dive, but for many it can be a challenging and exciting recreational activity.

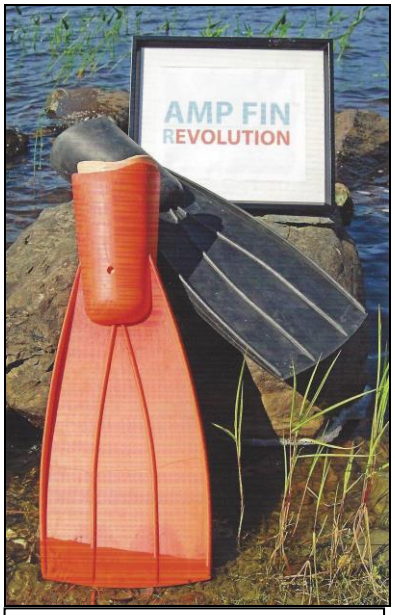
AMPUTATIONS

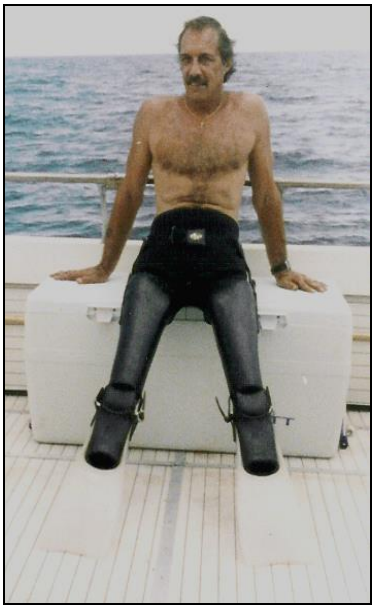
1. Overview:
   There are an estimated 45,000 amputations per year; the proportion of lower extremity to upper extremity is 11 to 1 for both male and females. The proportion of males to females is 3 to 1.

2. There are four types of amputees:
   a. Amputations below the knee, called **BK** or bilateral BK for both legs, account for most amputations. BK amputees adapt well to prosthesis and can walk, but have the most trouble psychologically adjusting to their disability.
   b. **AK** amputees, Above the Knee, have great difficulty walking with prosthesis, and usually end up using a wheelchair. However, they psychologically adapt to their disability better than BK.
   c. Amputations below the elbow are called **BE**; above the elbow, **AE**. They adapt best.

3. Causes: Trauma, malignant tumors, and loss of blood supply from narrowing of the arteries.

4. The common term for the residual limb is **STUMP**.
   a. It takes several months for the stump to mature and reach a steady state.
   b. The sectioned nerve ending in the stump may form a growth called a neuroma. This becomes the site of intense pain when pressure is applied.
   c. The stump should be protected from injury at all times, ulceration (decubiti), of the skin can occur due to poor circulation.
   d. Amputees may overheat more rapidly because our arms & legs are ventilators.
   e. Chair arms in the classroom will aid amputees in standing up. Appendix C, Page 70





Custom fit to residual limbs, no straps, power stroke both directions.
www.ampfins.com
ampfins@gmail.com

These homemade swim-legs are made from an "old" pair of legs, held in place by harness (top photos). Curt Thermann, bilateral AK.

HEARING-IMPAIRED

1. Overview: What is hearing loss?
   a. Normal conversation is at 60 decibels (dB).
   b. A 40 to 60db loss makes it very difficult to understand normal conversation, and may prevent the person from hearing it at all. An 80db loss is a profound hearing loss.

2. The Invisible Disability, because the handicap is only observable when communication occurs, the REAL handicap of deafness is impaired speech formation & the inability for most people to communicate with them by signing with ASL or the Manual Alphabet (see below). This results in:
   a. Stigmas develop because of how the deaf sound to others, sometimes even misinterpreted as retarded because of speech distortions.
   b. Even people who are NOT totally deaf may have speech defects because the cues they hear and imitate are distorted or inadequate.
   c. Deafness is very isolating and the deaf tend to be withdrawn in normal social situations, however, in groups of deaf people their sign language is bolder, bigger, and more expressive. They are very sociable; learn some signing to help bring them out, it is greatly appreciated.

3. Anatomy The ear has three (3) distinct parts:
   a. EXTERNAL EAR: Ear canal and outer side of the eardrum.
   b. MIDDLE EAR: Inner side of eardrum, ossicular chain and one end of the eustachian tube. The ossicular chain is made up of the malleus, connected to the eardrum, the incus and stapes, connected to the oval window. The vibrations of the eardrum are passed through this chain to the oval window, accessing the inner ear.
   c. INNER EAR: Consists of a complex system of intercommunicating chambers and tubes called the labyrinth. The labyrinth is made up of the cochlea, which functions in hearing, 3 semi-circular canals that function in providing a sense of equilibrium and a connecting structure called a vestibule that functions in both hearing and equilibrium.

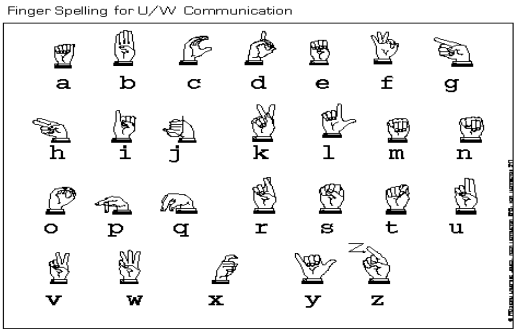
4. Hearing-loss types:
   a. CONDUCTIVE is the interference with the transmission of vibrations to the inner ear and accounts for approximately 20% of cases. Structural damage to the eardrum accounts for a small percentage of all hearing disabilities.
   b. SENSORINEURAL (Nerve Deaf) is hearing loss from diseases of the inner ear that destroy nerve endings. This is the most profound hearing loss, accounting for the most cases.
   c. MIXED, both Conductive & Sensorineural

5. Hearing Aids do not affect pitch, or compensate for sensorineural hearing loss. They only increase volume. Loss of certain nerves will cause loss of certain or all sounds and that cannot be compensated for by a hearing aid.

6. Cochlear Implants help restore your ability to hear and perceive sounds. It bypasses the damaged portion of the ear and sends signals directly to the auditory nerve. Scuba diving with a Cochlear Implant is viewed with varying opinions by Otolaryngologists; the most recommended limit is 30m or 99ft. Caution: Do not make medical decisions, use & depth limits are medical decisions.

7. Lip Reading:
   a. If a student is lip reading, speak clearly, maintain eye contact, but do not exaggerate lip movements.
   b. Less than ONE THIRD of the speech sounds can be visibly detected, so you cannot assume lip readers can understand everything that is said. Therefore, use visual aids to support speech.

8. Sign Language:
   a. "Finger spelling" using the Manual Alphabet is easy to learn and can be extremely useful to all divers, such as communicating the names of marine life while diving without fumbling with slates. To use, hold hand close to your chest, centered under your chin, keep your palm facing out towards the reader.



   b. SIGN LANGUAGE: There are many different types of sign language, and even the same types may differ regionally.

      "ASL", American Sign Language is actually different from "Signed English". ASL was created by the deaf, for the deaf, and is designed to be highly visible for the receiver and comfortably produced by the signer. ASL is a gestural language. Its components are specific movements and shapes of the hands (including palm orientation) and arms, eyes, face, head and body posture. These gestures serve as the words and intonation of the language. ASL is also a visual language, in that it takes advantage of and depends on the ability of the human eye to detect small differences in the movement of the signer. Fluency in ASL is not easy to attain, and usually can only be found in those who grew up with deaf family members.
      EXAMPLE:

      > "Dear Sir/Madam
      > … I knew would be very good in the America had forward progress improvement professional bodies for deaf people consider positive better than in the United Kingdom too slower. . I have qualified scuba diver follow Open Water Diving, Advanced Open Water. … I would like join HSA might good interest positive for deaf people as well all together disabled diver as well. Your Faithfully, John Doe, Deaf Person (email message)."

9. Many hearing-impaired use less vocabulary. New words are not heard so they are not used, this results in a limited vocabulary. Some parents send their kids to Deaf Institutions and many of those kids at 12th grade read at 4th grade level. Even books need to be explained; therefore only a small percent are interested in reading. Some do not read at all. For SCUBA instruction, teachers must simplify the language, and be certain your student understands the words you are using.

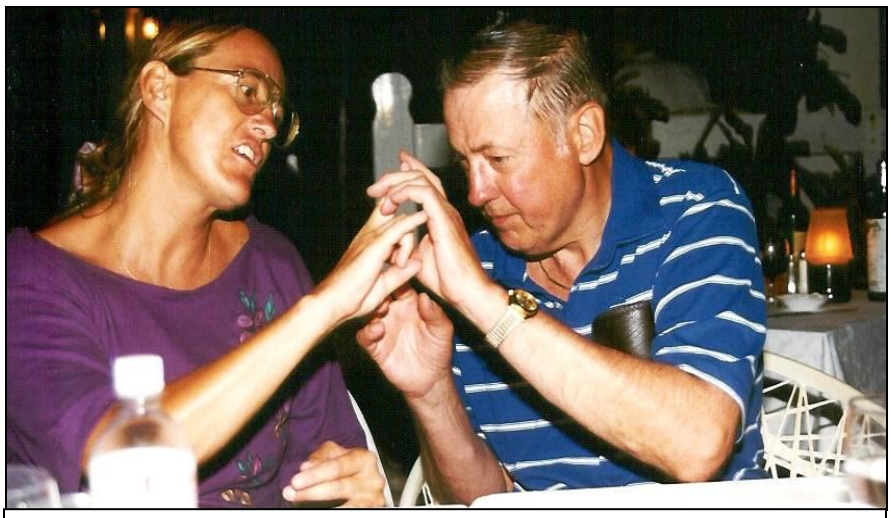
Laura Tollin, deaf since birth: You do need a lot of parental input/involvement to be successful as a deaf person. I took a test when I was in 9th grade to see where my reading levels were. I scored in college level reading skill - My Mother has a lot to do with that. She's an expert at English and basically banned ASL. Signing was permitted if I used my voice. Over time, I started only using my voice.

10. Hearing-impaired are very observant and copy whatever you do, be careful not to make mistakes.

11. Because of the communication barrier, it is advisable to have a scuba diver sign for you to ensure correct communication of SCUBA concepts.

12. Emergency planning: They may not be able to use the telephone or communicate what has happened in an emergency. This is a serious consideration and must be addressed during training and dive planning. Level B certification may be required to compensate for this limitation.
CASE HISTORY: A hearing-impaired diver's buddy got into trouble and had it go unnoticed. This incident was told to Gatacre by the instructor who had trained and certified the diver.

"After a boat dive the deaf diver came up with his dive buddy all excited, the people on the boat were yelling and waving, and he was waving back. His dive buddy was in trouble behind him. That is what the excitement was about! The diver could not hear his buddy's cry for help, nor could he hear the frantic cries from on board the boat for him to turn around. His buddy drowned. The instructor always felt responsible because he hadn't thought of this happening."



HSA diver Carl Strote, B-0281, is blind & deaf.
Using “tactile signing”, Mary communicates with Carl at dinner.

On board the “Alice H” Carl readies himself for another great dive in Bonaire.

SIGHT-IMPAIRED (BLINDNESS)

1. OVERVIEW:
   a. Of the five senses VISION provides us with our most efficient source of information about the world, in fact 85% of all information we receive is through vision.
   b. Vision occurs when light reaches the retina at the back of the eye, stimulates certain chemical responses that are conveyed to the brain via the optic nerve. It is a very direct information source in fact the optic nerve is actually an extension of the brain itself.

2. Causes of sight impairment: Can be congenital or acquired, total or partial.
   a. The Retina can develop inflammation, tumors, detachment and decrease in nourishment due to pressure within the eye (glaucoma).
   b. The Optic nerve can be damage.
   c. The Visual Centers of the Brain can be injured by trauma, stroke or disease.

3. Partial Sightedness: A Legally Blind persons' visual acuity is 20/200, that is, when they are at 20 feet/6m from what they are viewing, they see what healthy eyes see from 200 feet/ 60m.
   There are two types of partial blindness:
   a. TUNNEL VISION means seeing straight ahead, with no peripheral vision due to retinal degeneration. The opposite of Tunnel Vision is possible, the person can see only peripherally, with no vision straight ahead. This condition is usually genetically inherited, and it is progressive with person gradually losing vision until they are blind.
   b. LOSS OF VISUAL ACUITY means far or near sightedness. When you are tested using an eye chart you are being tested for visual acuity. Most of us will suffer from loss of visual acuity after the age of 40.

4. Total Blindness: "So why dive? It is a visual sport."
   a. They dive for adventure, accomplishment and involvement in a normal activity with friends and family.
   b. Their experience is special:
      1) The blind develop a capacity to "hear" and "feel" objects. This proximity sense is present in all of us, but more developed when sight is lost or impaired.
      2) They also have a special facility known as tactile vision, enabling them to explore the environment "by touch", feeling textures, forms, and feeling motion such as the movement and temperature of the water.
      3) Next time you are in an elevator feel the brail floor numbers 1, 2, 3… on the control panel. Close your eyes, and try reading them. Now consider that the blind read by passing their fingers rapidly over thousands of such tiny bumps. Their tactile experience differs from ours.

   c. For those with "congenital" blindness there is a very special perceptive ability. They have a greater sense of dimensionality than sighted people, because they can appreciate all sides of an object simultaneously, that is, they obtain "tactile" information from different sides of an object and integrate the images. Sighted people are experienced in dealing with two dimensional representations of solid objects, outlines are very important.

JERRY HOUSTIN says: "I like to go down scuba diving and visualize things in a 3-d type perception."

5. Communication

Blind people pick up a lot of information from auditory social cues, such as intonation or hesitancy in someone's voice, are the equivalent of body language. You need to use well-chosen words to get the point across since they are more dependent on verbal explanations. Give more detail in verbal explanations and use tactile presentations when possible, such as when lecturing on the equipment.

6. Diving Tips, Equipment

a. Suggestions from Jerry Houstin, and D.J. Morin, American Divers International:

1) Tie Braille type Knots in a rope to indicate depth.

2) Large Livestock Syringe for Depth: Using epoxy, block the end where the needle attaches and take the syringe down marking the syringe plunger for each 10 feet/3m of depth.

3) Fabricate a Braille Slate: Make slate by brazing the Braille alphabet onto a flat piece of steel. This is a great way to communicate underwater. Simply place the blind diver's finger onto the letters and spell out the message.

4) Slow Ascents: Use a Signal Tube tied with a strong nylon cord on a reel with knots tied at one-foot intervals. Fill the Signal Tube with air from the regulator and release, and then count the knots to determine the depth and rate of ascent.

5) Diveways Aquabuzzer. When tank pressure drops to 50bar (725 psi) "bubbles" & "buzzer sounds" are generated to warn the diver & their buddy. http://www.diveways.jp

7. Navigation

Feel the sand ripples on the bottom, for their orientation to the shore, their shape, the curve at the top, for the indication of direction of predominant wave action and their degree of separation relative to each other for the distance to the shore.

8. Emergency planning

They may not be able to locate the exit point, beach or boat, or telephone in an emergency. This is a serious consideration and must be addressed during training and dive planning. Level B certification will compensate for this limitation.

9. Tactile Communication for Underwater

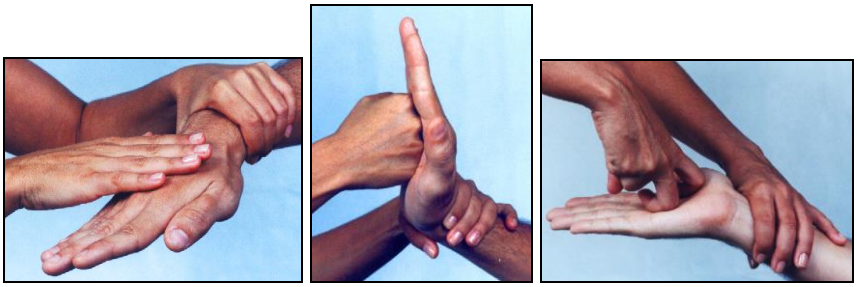
At the surface you will communicate through speech, with some tactile communication enhanced by speech, however, underwater you must rely completely on a combination of tactile signals and 'remembering' what to discuss once back on the surface.

The sight-impaired person will know the standard hand signals and answer with them. If you find it necessary to add signals, keep them simple and distinctly different from other signals.

TACTILE SIGNALS

a. Descend: Pressure applied to the **back** of the hand with one finger.
b. Ascend: Pressure applied to the **palm** of the hand with one finger.
c. OK: One firm squeeze to the biceps.
d. Air Pressure: Inscribe a circle with your finger in the palm of the hand (indicating 'gauge'), followed by **one** firm squeeze (indicating 'pressure') to indicate their air, or **two** to indicate your air. Count the air pressure by squeezing the fingers, each one finger equaling 100 psi/10 bar.
e. Depth: Inscribe a circle with your finger in the palm of the right hand (indicating 'gauge'), followed by firm pressure with the finger and thumb in the middle of the palm and back of the hand ('up and down'). Count the depth by squeezing fingers.

f. Bottom Time: Inscribed a circle with your finger in the palm of the hand (indicating 'gauge') followed by a firm squeeze to the wrist (where one's watch might be worn). Count the time by squeezing the fingers, each finger is 10 minutes for example.
g. Neutral-out: Circular motion applied with your palm to the back of the blind divers' hand, followed by either the Ascend signal if diver's buoyancy is negative or the Descend signal if it is positive. (See below left photo)
h. Danger: Press your fist in the palm of the blind divers' hand. (See below center photo)
i. Kneel down: Press the knuckles of two fingers into the palm of the blind divers' hand. (See below right photo)
j. Start Swimming: Two squeezes to the forearm.
k. Stop Swimming: One squeeze to the forearm.
l. Change Direction: When diving with a sight-impaired person, they will be holding on to you. To change directions simply guide them by changing your direction.
m. Low Air Blind Diver: Tap blind diver on the chest and follow with the ascent signal.
n. Low Air Buddy: Tap blind diver on the chest and follow with the ascent signal.
o. Regulator Recovery: Squeeze the right shoulder and tap on their regulator second stage.
p. Share Air: Blind diver is 'receiver of air', tap on the chest and follow with taps to the regulator second stage. Blind diver is 'donor of air' taps to their regulator second stage.
q. Flood Mask: Partial flood, one tap on their mask lens, full flood two taps on their lens.
r. Remove Mask: Gently tug on their dive mask.
s. Orally Inflate BCD: Circular motion to the back of their hand followed by taps to their regulator second stage.
t. Emergency Swimming Ascent: Taps to their chest followed by the up signal.



MULTIPLE SCLEROSIS (MS)

1. Overview:

a. MS is primarily a disease of adults 20-50 years old, it afflicts one third of a million Americans, National MS Society, which also report a high suicide rate among those afflicted.

b. MS is the multiple scarring of the brain and spinal cord's 'Myelin' tissue, producing widespread nerve related symptoms. The cause of MS is unknown, but scientists now treat MS as an autoimmune disease where the body's immune system attacks its own Myelin tissue, causing demyelination of nerve fibers. This can result in short circuiting of the neural system so that messages sent through the nerve fibers may be slowed or blocked.

c. Note: Myelin can be compared to the insulation coating electric wires. page 9, 2.c.

d. Range of symptoms varies from mild to severe. They have remissions and exacerbations of symptoms, that is, the symptoms come and go unpredictably.

e. MS is a progressive disease, meaning symptoms grow generally worse over time. About 5% of those with MS have debilitating symptoms and in fact symptoms may not even be noticeable. MS does not significantly shorten a person's life expectancy, and it is not contagious.

2. General symptoms include fatigue, loss of sensation, in-coordination, motor weakness, paralysis, bowel and bladder control problems, spasticity, double or blurred vision, blindness, slurred speech, pain, and depression.

3. Cautions:

a. In severe cases they must use a wheelchair, or an electric wheelchair, or they may not be able to manage by themselves, and they may need an attendant to push them and feed them.

b. People with MS may be intolerant of heat, and may become very exhausted during physical activity. If so, symptoms may become exacerbated. Some specialists refute this theory.

c. MS may cause seizure, memory and judgement disorders.

4. Case history: Jim Gatacre had a student with MS in a class. He used a manual wheelchair, was able swim and perform Scuba skills. During a pool session he became exhausted and he could not get out of the pool. Gatacre went to his house to find out why he had not returned to class, and the man answered the door in an electric wheelchair. He said he had not slept in days, and was having nightmares while awake. He did not finish his scuba training, but others with MS are active divers.

5. Disease management techniques: nutrition, rest, prompt treatment of infection, personal skills development for self-image, recreation activities, and hydrotherapy, for exercise in the water.

6. UNIVERSITY OF SHERBROOKE, Quebec, Canada, developed a treatment program many years ago called Dynamic Adaptive Physical Education. Because inactivity for MS patients leads to the development of life-threatening diseases, these diseases must be combated with "activity". Appendix D, page 73
   a. Inactivity-induced diseases include: loss of neuromuscular function, osteoporosis, reduced circulation and mental health problems from social isolation.
   b. Walking and Wheelchair Schools combat these diseases through Game, Sport and Dance.

7. Because of risks due to possible impaired memory, judgment, and seizure disorders, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In many cases, it may be inadvisable to scuba dive.

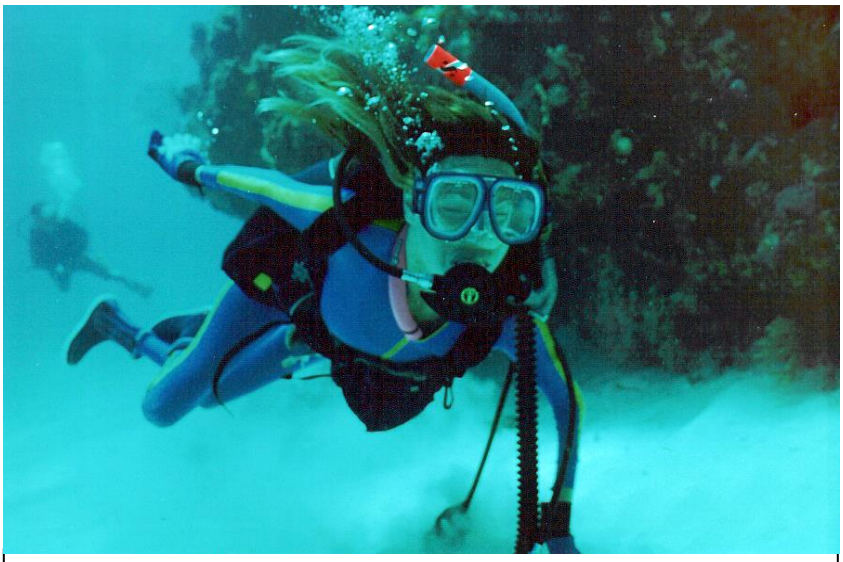
MUSCULAR DYSTROPHY (MD)

1. Overview:
   a. Muscular Dystrophy refers to a ***GROUP*** of Inherited Neuromuscular diseases that produce progressive loss of muscular strength.
   b. Some forms progress slowly, produce minor disability and permit them to live a normal life span. Other forms progress rapidly, and produce severe disability and/or drastically shorten the person's life span.
   c. There are 12 diseases listed as "true" Muscular Dystrophy's, together they number 250,000 nationally, and 2/3rd of the cases are children.

2. There are 3 main types of true Muscular Dystrophy.
   a. Facio Scapulo Humeral, it strikes children in their teens causing weakness in the face, shoulders and upper arms, their life span is often normal.
   b. Limb-Girdle, it usually strikes in late childhood or early adolescence, with most becoming severely disabled and unable to walk by middle age. Their life span is usually shortened.
   c. Duchenne (Doo-Shen), the most familiar form of the disease among non-medical people. It strikes children between the ages of 1 to 5, progressing rapidly; the child usually requires a wheelchair by adolescence. Their life span is shortened, resulting in death within 15 years from respiratory failure.

3. Almost **ALL** true Muscular Dystrophies result in lung scarring. Lung scarring is a contra-indication to diving.

4. Also, there may be cognitive deficits, so there may be learning, judgment and memory disorders.



Julie Perez, HSA Advanced C-0041, enjoying a dive in Akumal, Mexico. Charcot-Marie-Tooth created her disability, Quadriplegia, but it has not slowed her down. In addition to diving, Julie is married & the mother of two children.

5. Muscular Dystrophy covers 40 associated neuromuscular diseases. There are approximately one million people affected by these diseases. One type, Charcot-Marie-Tooth, causes degeneration of the peripheral motor neurons resulting in weakened limbs.

6. Because of the risk involved due to lung scarring and cognitive abnormalities, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In many cases it may be inadvisable to scuba dive, but for many, it can be a challenging recreational activity.

DIABETES MELLITUS

1. Overview:
   a. Diabetes affects approximately 5% of the population.
   b. It is a lifelong disease of the insulin-producing cells of the pancreas, resulting in disturbances in the utilization and storage of sugar. Body cells cannot "absorb" sugar without insulin.
   c. Everything we eat, from hamburgers to candy bars, is reduced to a sugar called glucose. Glucose is a cell food. Without it, cells die rapidly.
   d. The severity of this disorder varies considerably. Some can manage their diabetes with an adjustment in diet, while others are insulin-dependent. The insulin-dependent diabetic is at risk while diving.

2. Insulin-dependent diabetics can experience low blood sugar episodes called an "insulin reaction", or Hypoglycemia. This is caused by an imbalance of insulin to sugar. Sugar is used, but the insulin level remains constant and is proportionately too high.
   a. When levels of insulin to sugar are too high (hypoglycemia), the production of glycogen to glucose, cell food, is suppressed. The body reacts with adrenaline and other hormones to reduce the effect of the insulin. In the meantime, the body cells are "starved" and die.
   b. Insulin reaction symptoms begin with a release of adrenaline and:
      1) The person becomes "keenly aware".
      2) Their heart rate increases and they begin to tremble.
      3) Their judgment may become impaired, and confusion and disorientation may set in.
      4) If left untreated, these symptoms can result in loss of consciousness and seizures.

Doug Sheridan aboard the Fiji Aggressor in Fiji
Doug is insulin dependent.

3. A fast effective treatment of insulin reaction (hypoglycemia) is necessary to prevent accidental drowning. With the first symptoms indicating insulin reaction, the diver must surface and orally ingest "Sugar". Good edible sources include:
   1) Orange juice and Soft drinks (but not diet drinks)
   2) Honey and High glucose gel

4. Good management and "preparedness" is required for diving.
   a. Good MANAGEMENT is a proper balance among:
      1) Diet, Insulin regulation, Exercise and Therapy.
   b. Good DIVE PREPARATION will include:
      1) Blood Glucose monitoring before and after diving to develop an individual insulin level for diving. This is usually approximately 1/3rd LESS than normal use. NOTE: People who are active will probably be aware of this procedure.
      2) Have a sugar source available at all times and keep well hydrated.

5. Both DAN (Divers Alert Network) and the Diabetes and Diving Committee of the American Diabetes Association agree that some persons with diabetes can and do dive safely.

6. Because of the risk involved, caution must be used. The student must be evaluated by a physician that understands their disability and the effects of Scuba diving. It may be inadvisable for many of them to scuba dive. Appendix E, page 74

CANCER PATIENTS

Susan Langford Jones, cancer patient, HSA Instructor #0547

OVERVIEW

Cancer patients who are diving DURING or AFTER their course of treatment are receiving, or have received, CHEMOTHERAPY and/or RADIATION. Both manifest symptoms that require diving precaution.

CHEMOTHERAPY

There are many types of chemotherapy. Many patients will be on a 'chemo cycle'. During this cycle the white blood cells are used up. The patient's immune response fall's off after Day 1 and reaches the lowest point between Day 10 and 14, then recovers as the bone marrow makes new white blood cells.

INFECTION: During the time when the white blood cell count is low, the patient is ***EXTREMELY*** susceptible to infection. The smallest cut or abrasion will not heal well. SEA ITCH, the attack of thimble jellyfish larvae, will require immediate medical attention, and is far more serious than it would be for the average diver.

ANTIBIOTIC: Patients who dive during their course of chemotherapy are advised by Doctors to take a prophylactic antibiotic.

RADIATION THERAPY

As RADIATION THERAPY is often given every day for a period of months, it is not likely that a patient in the midst of a course of therapy will be able to go diving. Patients who have completed their course of radiation therapy have three types of problems.

1. SUN-SENSITIVITY. For at least a year following radiation treatment, the cancer patient must avoid exposure to the sun in the radiated area. Repeat Avoid! A t-shirt only provides about SPF5, which is not enough, so such a diver must wear a neoprene or darlex suit.
2. WEAKENED BONES. The bones in the area where radiation has been received are weakened! If, for example, a diver has received radiation for BREAST CANCER, the rib cage will have been weakened. The bones do not recover. Therefore, the diver should take precautions to don gear in the water, and not walk around or climb up ladders wearing a heavy BCD, tank & weight belt. Often a dive operator will not know this, so the HSA c-card will help the diver get the kind of special help needed from Dive Masters when the diver 'appears' outwardly to be perfectly fine.
3. WEAKENED LUNGS. There may have been some lung involvement during radiation. So, it is strongly recommended that the diver discuss potential Scuba diving activities with their Radiation Oncologist. It may be inadvisable for some cancer patients to resume diving, if they have received radiation to part of their lung.

EXHAUSTION

Radiation therapy and Chemotherapy are both exhausting. A diver receiving Chemotherapy will not be able to make many dives in a day. A diver who has had both chemotherapy and radiation should wait several months after the conclusion of radiation, until such point as the Radiation Oncologist says the patient is 'recovered' from radiation, to consider diving again.

CANCER HOSPITALS for children use Scuba to help reintegrate their patients, who are separated from normal social activities, into society. This is done in Poland & Germany.

SEIZURE DISORDERS (EPILEPSY)

1. Overview:
   a. The term seizure disorder is the correct term, rather than epilepsy.
   b. Seizure disorders affect approximately 1% of the population, over two (2) million Americans.
   c. Approximately 37,000 children develop seizure disorders annually. More males than females have the disorder.
   d. These seizures can cause disruption of consciousness, muscle spasm or uncontrolled movements, convulsions, and alterations in sensory, motor, cognitive and emotional states.
   e. There are many types of seizures, but they can be broken down into two categories: Convulsive seizures and Non-convulsive seizures

2. Causes are classified as:
   Unknown, called idiopathic, 77% of the cases.
   Symptomatic, caused by degenerative conditions, such as multiple sclerosis, strokes, brain trauma, tumors, fevers in children, heatstroke, and hypoglycemia.

3. Seizure disorders are "symptoms" of "disturbed" nerve cell activity in the brain. Normally, each nerve cell generates small bursts of up to 80 electrical impulses per second, moving from nerve cell to nerve cell, communicating with muscles, sense organs, and glands, that underlie all human behavior, thoughts, feelings, actions. With seizure disorders, the nerve cells can fire at rates up to 500 times per second.

4. Generalized seizures are when the whole brain is involved. They are convulsive seizures classified as either **Grand Mal** or **Petit Mal**.
   a. **Grand Mal seizures**, called Tonic-Clonic Seizures, account for 90% of the cases. The *Tonic* stage is the muscle-stiffening, convulsive stage of the seizure. The *Clonic* stage is alternating of muscle contraction and relaxation in rapid succession. Symptoms include:
      1) A shrill cry, as air is involuntarily forced from the lungs through bronchial tubes constricted by the convulsive muscles surrounding them.
      2) Muscle stiffening during the Tonic stage.
      3) Uncontrolled movement that may result in tongue biting to bone fractures during the Clonic stage.
      4) Confusion, Loss of consciousness, and Amnesia.

      The seizure is usually followed by a post-convulsive coma lasting 1 - 4 hours. Seizures may occur many times in one day or only once in several years; they are very unpredictable.
   b. **Petit Mal**, called Absence Seizures. This is a childhood seizure disorder under age 18. Symptoms include:
      1) Momentary losses of consciousness and inappropriate movements.
      2) Seizures are of brief duration, lasting from one second up to two minutes.
      3) They are high frequency, sometimes several hundred times per day.
      4) There may be no noticeable symptoms, and they can resume what they were doing immediately after the seizure.

c. **Partial Seizures** are non-convulsive; this is when only a portion of the brain is involved in massive brain cell activity. Symptoms include:
    1) Simple Complex Seizures, involuntary movements while still conscious.
    2) Partial Complex Seizures, altered perceptions of reality, inappropriate behavior, such as laughing, talking strangely, and walking in circles.

5. Cautions:
    a. 50% of those with seizure disorders can be well controlled with modern medication.
    b. Emotional tension created by the demands of new or frustrating situations, such as SCUBA diving, lack of sleep, pressures of life, alcohol consumption, hyperventilation, light conditions, and sun flickering on the water, can all affect medication's protection.

6. CASE HISTORY: Should people with seizure disorders dive? During a workshop a woman who had experienced four seizures in her lifetime told her story. She was doing nothing unusual at the time they occurred. Even so, she had been diving for two years without problems. Her precautions were:
    a. Restrict depth to under 100 feet/30m and always decompress at 10 feet/3m.
    b. Avoid difficult diving conditions, such as strong currents.
    c. Use medication and do not drink alcohol (alcohol effects the medication's protection).

    Her doctor, and friend, advised her "that in case of a seizure underwater, her buddy should squeeze the air out of her lungs, and bring her to the surface." This would probably be impossible to perform.

7. Dr. Harry Heinitsh, member of the board of HSA, works with military divers who use oxygen re-breathers. They occasionally get O_2 toxic poisoning, resulting in seizures that are the same as Tonic-Clonic seizures, so there is a track record.
    a. What happens?
    The Regulator pops out of their mouth and the Lungs trap air that cannot be "squeezed" out.
    b. Reaction: What to do in case of a seizure underwater, military procedure:
    Keep the regulator in their mouth and keep them at depth until the seizure ends.
    c. Results:
        1) Most of those brought up embolize and die.
        2) Most of those not brought up die from drowning.
        3) There are some survivors.
    d. Full Facemasks are now used by Military divers when diving with re-breathers.

8. CASE HISTORY: Instructor Ron v.d. Meerendonk, HSA # 1053, tells us in 1996 that he had a student who had a seizure disorder, but had not had a seizure for a decade. Approved by his physician for diving, he had completed his pool training and his first open water dive (to 13 ft/4m) without a problem. The student went home, and then had a seizure. Increased O_2 combined with emotional tension, are the suspected causes.

9. Because of the extreme risk involved someone with a seizure disorder ***should not*** SCUBA dive.

The film 'To Fly in Freedom' demonstrates equipment and swim techniques used by divers with disabilities. Appendix I; Read this document while watching film for maximum education in handicapped diving techniques.

HISTORY AND DEVELOPMENT
HSA PHYSICAL PERFORMANCE STANDARDS

Understanding the work that has gone into the development of the HSA's Physical Performance Standards is important because it will give you the confidence you need to apply these standards comfortably. It is also important to understand that they are the result of the combined concerns, efforts and contributions of the DIVING INDUSTRY.

The development of the HSA Physical Performance Standards began with the ***Disabled Divers Workshop***, held November1982, by the ***Council for National Cooperation in Aquatics, CNCA***. The CNCA's goal is to ensure that aquatic sports are safe and enjoyable. CNCA wrote the first physical performance standards for recreational SCUBA diving.

Members of CNCA had become concerned over the training of people with disabilities because it was obvious that these students were not being trained according to the current industry standards. This was the reason for the Disabled Divers Workshop, to determine just how the industry standards were being modified, and to evaluate the safety and effectiveness of the altered methods used to train students with disabilities.

The first Disabled Divers Workshop was chaired by Dennis Graver, at that time PADI's Education Specialist. There were three days of intense discussions with leading professionals in underwater education. Some of those professionals such as Bob Smith and Dr. Glen Egstrom had been involved with CNCA in the development of the first Physical Performance Standards used to train the recreational Scuba diver.

The workshop determined that it would NOT be sufficient to simply modify the industry Physical Performance Standards, but rather that a new set of ***comparable standards*** would have to be developed to accommodate the special needs of disabled divers. The Disabled Divers Standards Committee was formed to accomplish this.

DISABLED DIVERS STANDARDS COMMITTEE
DENNIS GRAVER, Chairman, PADI Education Specialist
JIM GATACRE, Coordinator, HSA President & founder
GWEN GARRETT MCDONALD, Occupational therapist
DR. HARRY HEINITSH, MD, Diving Medicine specialist
LARRY THOMPSON, paraplegic, HSA Assistant Instructor

A tentative set of standards was developed by this staff and presented at another Disabled Divers Workshop held in March 1983 by the Undersea Medical Society in Bethesda, MD. Attending, in addition to the Disabled Divers Standards Committee staff, were Walt Hendrick, Sr., NAUI's National Training Director; several medical doctors specializing in diving medicine, several handicapped divers, and instructors who had trained handicapped divers.

This second workshop revealed that the training and certification revolved around a central issue, Buddy Dependency. To what degree could a disabled diver function as a buddy? Could they assist another diver in distress? How much, and what type of assistance would they need from their buddy? These are the questions that would have to be answered without prejudice.

For example, the abilities of people with similar disabilities vary greatly from person to person. Two students, even with the same disability, may have different abilities and/or special needs. It would be prejudicial to attempt to assess a student diver's abilities based only upon their apparent disability.

THE FINAL PHASES OF DEVELOPMENT WERE CONDUCTED BY THE HANDICAPPED SCUBA ASSOCIATION

The ***tentative*** Physical Performance Standards created by the Disabled Divers Standards Committee were put to practical application.

These standards evolved through several actual training classes where Research and Development was conducted. These classes were well balanced in age, gender, aquatic experience and disabilities. Dive students included a below the knee amputee, paraplegics, quadriplegics, hemiplegics, sight-impairment, and cerebral palsy. After each practical application of the Performance Standards, they were revised and submitted to the ***HSA NATIONAL ADVISORY BOARD (HNAB)*** for review, recommendations, and eventual approval.

HSA NATIONAL ADVISORY BOARD
DENNIS GRAVER, PADI Educational Specialist
JOHN STEWART, PADI Educational Specialist
Walt Hendrick, Sr., NAUI Training Director
JIM HICKS, NAUI College owner and NAUI Training Director.

Several times over the next two and a half years, these standards were used by HSA instructors, revised and resubmitted to the HNAB for review and recommendations, then returned to HSA for collating, rewriting and another round of practical application.

The final approved version of these highly refined HSA Physical Performance Standards and Multilevel Certification are in use today to train and certify students with disabilities worldwide

MULTILEVEL CERTIFICATION, AN EXPLANATION;

Based on the student's ability to successfully challenge the HSA Physical Performance Standards, the HSA developed the Multilevel Certification. This is a PERFORMANCE-BASED method of assessing and accommodating the disabled diver's specialized needs.

It is IMPORTANT TO NOTE that ONLY the Buddy System is affected by this certification procedure. All other sport diving requirements and activities are the same as for any diver.

This system is for the protection and safety of ALL members of the dive team. That is, the THIRD DIVE BUDDY in the dive team is NOT there to help the B or C Level diver they are there for the other A Level or above dive buddy in case they have an emergency.

MULTI-LEVEL CERTIFICATION IS:

LEVEL A

The student has successfully challenged all of the HSA Physical Performance Requirements, demonstrating that they can safely scuba dive, solve basic personal emergencies, help another diver in distress, and perform basic rescues.

By successfully challenging these standards, they have performed the skills required to be an effective Buddy and are certified to dive with one other certified SCUBA diver.

Paraplegic performs rescue in the surf.

LEVEL B

The student has successfully challenged those HSA Physical Performance Standards that demonstrate their ability to safely scuba dive, and to solve basic emergencies. However, they have not successfully challenged those Performance Standards that demonstrate their ability to help another diver in distress.

Therefore, the LEVEL B diver is certified to scuba dive with TWO DIVE BUDDIES who are certified Open Water Level A or above. In the case of an emergency, this system will provide an effective dive buddy for all members of the dive team.

Note: The THIRD MEMBER of the buddy team is NOT for the diver with the disability, they are there for the A Level, or above, dive buddy that cannot be assisted by the B Level diver.

LEVEL C

The student has successfully challenged those HSA Physical Performance Standards that demonstrate their ability to safely scuba dive. However, they are unable to successfully challenge those performance standards that demonstrate their ability to independently solve basic personal emergencies, or to execute basic scuba skills, such as descending, swimming underwater, and operating their own Buoyancy Control Device.

The TYPE OF SKILLS that must be performed *for* them, such as operating their Buoyancy Control Device, require the Assisting Buddy to have specialized skills.

Therefore, they are certified to dive with TWO DIVE BUDDIES, one certified Level A or above, and an Assisting Buddy, certified at the minimum as a RESCUE DIVER. It is recommended that the Assisting Buddy be an HSA Certified DIVE BUDDY or above.

LEVEL C with 'CONDITIONS'

It is required that the Assisting Buddy is an adult of the parents' or legal guardians' choice, who knows them well and can predict their reaction. Page 5 & 6 Standards & Procedures

It is the responsibility of every diver to inform their dive buddies of their special needs and limitations.

CRITERIA FOR CERTIFICATION

1. ADA, AMERICANS WITH DISABILITIES ACT
   What rights and responsibilities does the ADA provide? The ADA offers equal opportunity for persons with disabilities to participate and compete in the mainstream of American life. The ADA simply requires that persons with disabilities are given a fair chance to pursue jobs, enter buildings and participate in events or activities that most Americans take for granted.

   The ADA does NOT offer preferential treatment, impose affirmative action quotas or require alterations in facilities or procedures that would financially burden those with responsibilities and duties under the law. If there is a question regarding someone's rights under the ADA, or your responsibilities as a Scuba Instructor and/or dive facility operator under this law, contact the Disability & Business Technical Assistance Center in your area by calling 1-800-949-4232.

2. VOLUNTEER PROTECTION ACT OF 1997. This is An Act to provide certain protections to volunteers, nonprofit organizations, and government entities in lawsuits based on the activities of volunteers. This is very important for people that may volunteer in teaching classes, or that help out on dive excursions. Appendix B

3. LIABILITY INSURANCE
   Liability insurance for instructors insures them while teaching. Liability Insurance sold by the major dive training agencies will cover you teaching HSA Courses.

   TEACHING STATUS for HSA INSTRUCTORS, Dive Masters and Assistant Instructors require HSA is named as ADDITIONAL INSURED on the Instructor's Liability Insurance Policy.
   NOTE: If Instructor Liability Insurance is NOT REQUIRED in the Country where you teach, for example Brazil, enter 'Insurance Not Required in Brazil' as your Insurance Company.
   Witherspoon & Associates issues Liability Insurance to HSA Instructors. www.scubainsurance.net

4. HSA PHYSICAL PERFORMANCE REQUIREMENTS, WHAT'S IMPORTANT & WHY

a. SWIM EVALUATION, CONFINED WATER
   This is an evaluation, NOT a Physical Performance Requirement, and it is NOT REQUIRED for certification. This evaluation will help reveal the student's comfort level and aquatic ability.
   a. The 220 yard/200m swim reveals aquatic ability, endurance and response to stress.
   b. The 10 minute survival swim reveals the ability to relax in the water.
   c. The 50 feet/15m, or 30 seconds, underwater swim reveals comfort underwater.

b. ENTRIES AND EXITS
   (I.C.3)*With assistance if necessary*, safely enter and exit the water, using the techniques best suited to the individual and local diving situations, including boat entries and exits. [R]
   This gives the instructor the go ahead to provide whatever NECESSARY assistance the student may need to complete this performance standard.

c. SURFACE CONTROL
   (I.C.9) Turnover at the surface while breathing through a snorkel and/or regulator from the prone to the back to the prone. [C-SPR]
   This standard does not exist anywhere else, but it is extremely important to many mobility-impaired divers, because it is often not possible for the person to hold their head out of the water. To turn onto the prone position is a skill like diving underwater for certain levels of spinal cord injuries, as well as for other types of mobility impairments.

d. DESCENTS

I.C.16: Control descents and be able to STOP and HOVER in MID-WATER at ANY TIME. [C-SPR]

This standard requires more than a controlled rate of descent. The HSA student must control their descent and be able to STOP AND HOVER IN MID-WATER AT ANY TIME. This is extremely important because a mobility-impaired diver may not be able to use fins to control descent. Such uncontrolled descents can be alarming, or even dangerous. We must be SURE of the HSA diver's ability to control descents.

e. NO-MASK SWIMMING

I.C.23: Completely remove, replace and clear the dive mask of water while underwater.

II.C.20: Completely remove dive mask underwater and ascend to the surface while breathing on SCUBA. Attain positive buoyancy, replace and clear dive mask of water. Perform in at least 20 feet/6m of water.

Due to mobility impairment, sight impairment, hand and arm impairment, the divers may find themselves without a mask for a long period of time. Therefore controlling that situation of breathing, problem solving and performing underwater without a mask is essential for safe diving.

Julie Peres, C-0041, during open water training in Cozumel, Mexico.

f. EMERGENCY SWIMMING ASCENTS

I.C.29: Simulate an out of air emergency and perform a controlled emergency swimming ascent, 30 feet/9m per minute, with all SCUBA equipment in place, air on, regulator second stage in the mouth, while exhaling continuously to the surface and THEN ORALLY INFLATE the buoyancy control device. This skill is to be performed in at least 8 feet/2.5m of water.

Orally inflating at the surface is an extremely important skill for mobility impaired divers. We tend to forget that we use our fins for buoyancy control during descents, ascents and emergencies at the surface.

g. EMERGENCY BUOYANT ASCENT

I.C.40: This is an important emergency procedure for the diver with a disability. For example, initiating an ascent during an out of air emergency would be almost impossible for the mobility-impaired diver. And because divers with spinal cord injuries may have no feeling in their torso and legs, they can and do lose weight belts at depth, so they may be required to perform an unexpected emergency buoyant ascent.

Because this is a complicated and potentially dangerous procedure, it is essential that this skill be taught in the water by a Scuba Instructor. Important procedures for safe training and execution of this skill are:

1) Get the belt away from the body, because it can get caught on tank boot.
2) Keep their SCUBA in place, so they can breathe if necessary.
3) The instructor is in "constant physical contact", so they can be slowed or stopped.
4) Dump air from BCD, flare the body to slow ascent, and exhale to the surface.
5) Ascend face up to insure safety at the surface.

h. SHARING AIR

An out-of-air emergency requires a solution within seconds, sharing air is often the best solution. With the development of new and better diving equipment, three distinct methods of accomplishing this basic SCUBA skill of sharing air must be mastered.

1) Buddy Breathing is the 'basic' air sharing skill, using the least amount of equipment, and is OPTIONAL for HSA Open Water Scuba Diver certification. An emergency is an unexpected event and may involve many compromising factors, including failed back-up air sources; we therefore highly recommend teaching this skill.

2) Alternate Air Source Use: Octopus Back-up Regulator. This is the safest method of sharing air because the Donor is essentially unaffected. They are never without their air source. The HSA requires the Receiver of air to secure the Octopus back-up regulator from the donor, increasing the availability of air.

3) Alternate Air Source Use: Integrated Inflator Regulator. This method is complicated, requiring both the Donor and the Receiver to secure new air sources.

The Donor now has a regulator that does not breathe as well, and it is attached to their BCD and Low Pressure Inflator. This complicates the skill for the Donor in that the Inflator hose is shorter restricting their head movement and their buoyancy control is affected because their low pressure inflator is in their mouth.

i. MARINE LIFE IDENTIFICATION [Required]

II.C.35: During each qualifying SCUBA Dive, find, describe and identify one form of marine life. Describe the marine life by size, color, and pattern. Give a brief account of where it lives, i.e. on the bottom, in seaweed, under a rock or in open water (pelagic) [R]

This is a REQUIRED Performance Requirement. This Performance Requirement helps the student immediately learn about the environment, which gets them 'outside' themselves and helps reduce anxiety. It makes their training dives more interesting, creates a desire to continue diving & prepares them for diving on their own.

"We protect what we love" Jacques Cousteau

PHYSICAL PERFORMANCE RREQUIREMENTS AND CERTIFICATION PROCEDURES

GO TO STANDARDS & PROCEDURES, COURSE STANDARDS PAGE 4

SPECIAL CONSIDERATIONS
Specific In-Water Training Considerations

Instructors of handicapped divers need to become experts in the special needs of these students. This chapter discusses each of five areas, and describes the special considerations.

- In-water training
- Classroom teaching
- Equipment
- Accessibility
- Open Water training

This section discusses the phases of a dive from beginning to end, and discusses the special nature of each:

- Preparation
- Entry
- Surface & Underwater Skills
- Communication
- Descents and Ascents
- Assisted Ascents and Descents, and Swimming
- Controlled Emergency Swimming Ascents
- Emergency Share-Air Ascents
- Swimming underwater
- Potential Injuries

1. PREPARATION FOR DIVING

   a. Instructor Preparation Considerations

      1) For Sight-impaired and Mobility-impaired divers, be sensitive to the obstacles on the deck or ground, such as weight belts and dive bags. These small obstacles can create a barrier for someone using a wheelchair, or cause someone to trip.
      2) Always make sure <u>you</u> are completely ready to dive before you start assisting your student. There is a tendency for divers and instructors to get involved helping the disabled diver, and forget to get ready themselves. This creates uncomfortable delays for the person you are helping.
      3) Always remember that some of your students with spinal cord injuries and amputations may have a problem with thermoregulation, the inability to sweat or vent-off heat. The result is they may overheat much faster than others. Make certain you know what their needs are. They may need to be provided with shade and/or artificial sweat In the form of wet towels, spray bottles or buckets of water.
      4) Also keep in mind that most spinal cord injured divers will have an increased tendency toward chilling and fatigue, so they must wear correct fitting exposure suits and begin activities as soon as they enter the water.
      5) This means that because you may have students with an increased tendency to overheat In the sun, and get colder faster In the water, they must get ready and into the water quickly and then begin their activities almost immediately. So ***<u>YOU</u>*** <u>MUST BE READY WHEN THEY ARE</u>.

b. Transfers

1) A transfer simply means to move from one location to another, such as a transfer from a wheelchair to a bed, from a living room chair into a wheelchair. Generally, they are using their arms to lift themselves from one location to another, or they are being lifted by people from one location to another.

2) In some cases, your students may not be able to transfer on their own, such as a quadriplegic, a paraplegic or perhaps they have just never learned how.

- These people would require assistance transferring from their wheelchair to the deck of a pool or a boat, onto another seat, or from one location to another. If you are going to help someone transfer, ALWAYS use a two-person lift. It is safer for them and for you. Lifting a person by yourself is sure to lead to a back injury.
- The two-person lift is accomplished by having one helper lift the person under their arms from the rear, while the other helper lifts from the front under their legs at the knee, so the knee naturally bends over the person's arm or hands.

3) ALWAYS ask the person what method of transfer works best for them, and explain what you intend to do before moving them. Some people have special needs, and must be transferred in a unique way.

4) CAUTION: Some people may have very poor balance, or be completely unable to support themselves in a sitting position, so make sure that you do not let go of them until they are securely balanced or lying down.

5) DO NOT sit people on hard surfaces without protection such as their cushions.

c. Donning Protective Clothing: Exposure Suits, Wet Suits, Dive Skins, etc.

1) Exposure suits are usually put on in a convenient place where it is clean and comfortable. However, it is the wet suit bottoms that are the most difficult to put on, so the top of the suit is most often left off and put on at the dive site just before diving.

2) The exposure suit bottoms are put on in the same way as a regular pair of pants. The person usually lies down, however some people can do this in their wheelchairs, and put the bottoms on either independently or with assistance. Either way the method is the same.

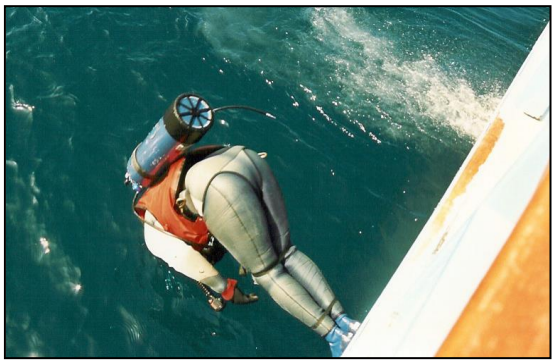
- First, empty the leg bag. The leg bag will fill inside the wet suit and underwater.
- Slide their feet through the leg holes. Lubricating the inside of the exposure suit may be helpful. CAUTION: If this is being done on a hard surface, such as a pool or boat deck, be careful to protect the feet from abrasion. Put booties on the feet as they are exposed. Donning an exposure suit causes a lot of movement of the legs and feet. They can be easily damaged because the person cannot feel them scrape on hard surfaces as they are wiggling into their exposure suit.
- Also, take caution when putting on booties, the person's toes could get bent back inside the bootie, and even be fractured without them realizing it, because they do not feel their feet. The same is true for quadriplegics when donning exposure suit tops, their fingers could be bent back inside the sleeve and be injured.

- Plastic bags over the hands or feet can help prevent this while making it easier to don them.
- When the suit is pulled halfway up the calf of their leg, carefully slide the leg bag, either independently or with assistance, flat against their leg, into the suit. The valve for emptying the bag must be positioned within easy reach of the pant leg bottom. Be very careful to ensure that there are no folds in the leg bag, and no kinks in the extension tube that will block the flow of urine.
- The person should hold on to their extension tubes to prevent pulling on the catheter. Pulling could result in dislodging a condom or indwelling catheter, and even cause damage to the bladder.
- Continue to inch the suit up, one leg at a time, to the top of their legs. Then, to get the suit up over the buttocks and hips, and either independently or with assistance roll the person onto their side and pull the side of the suit up as far as possible. Then roll them onto their other side and pull that side up, then back to their other side and so on until the suit is on. This is the hard part. The rest is just normal struggling.
- Things to remember while doing this: Be sure their feet are protected and their toes don't get bent inside their booties, the leg bag is flat and within reach for emptying, the extension tube does not get kinked or pulled, the pant legs are pulled well up onto the legs, and [for male students] the testicles are positioned for comfort, before pulling the suit over the buttocks and hips.

b. Donning Scuba Equipment
   1) ALWAYS don SCUBA equipment at the point of entry to avoid significant discomfort for the student divers and for you, the instructor.
      - For the mobility-impaired diver to move around while wearing SCUBA gear on a pool or boat deck, or on the beach, is very difficult without assistance.
      - For the sight-impaired person, walking around wearing SCUBA gear risks tripping and falling.
   2) Don the weight belt first. For the mobility-impaired diver, it will be necessary to lie down because the waist is larger in diameter when sitting than when the body is stretched out. If the belt is donned in the sitting position, upon entering the water the body straightens out, the weight belt loosens, and there is a good chance that it will come off.
   3) Donning the weight belt requires that it first be setup with equal weight on each side, positioned so the weight will be located at the front of the body when the weight belt is on. When the weight belt is properly setup, position it on the deck or ground, behind the student, so they can lie down onto the belt and either independently or with assistance securely fastens it in place.
   4) Don SCUBA. The student is now sitting at the point of entry, bring the assembled SCUBA unit [tank, regulator, and BCD] to them and help them put it on. When the BCD is on the student, slide the tank firmly against their back. It may have to be tipped back to conform to the angle of their body. The goal here is the same as when you bend over to get the tank firmly against your back to fasten and tighten the cummerbund, buckles and straps. Either independently or with assistance fastens their BCD straps.
   5) For a person with hand involvement, such as a quadriplegic, you may have to don their mask for them. The mask is a very personal piece of equipment and needs to be positioned "just right" on the face. To accomplish this, hold the mask close to their face, have them position their face onto the skirt of the mask, then pull the strap into position for them. This method allows them the freedom to position their face "just right" onto the mask skirt. A NEOPRENE MASK STRAP will make this much easier.

6) The leg bag will fill before and during the dive because both pre-dive anxiety and the cooler temperature of the water will cause the body to release fluids. Therefore, the leg bag should be emptied prior to diving. If a student is catheterizing intermittently, they should catheterize prior to the dive.
7) Don their mask and snorkel, fully inflate their BCD, and empty their leg bag when appropriate. THEY ARE READY TO ENTER THE WATER!

2. ENTRIES INTO THE WATER
   a. The sight-impaired diver will use a normal entry appropriate to the situation.
   b. The mobility-impaired diver will use the following techniques.
      1) When a giant-stride entry is used, the mobility-impaired diver will use a Modified front roll.
      2) When a diver uses the MODIFIED FRONT ROLL entry, they should never hit the water directly on their face. To avoid this uncomfortable situation, they must tuck their head into their chest, hold their mask and regulator, and roll onto their shoulder. Use this method when entering a swimming pool or from a boat swim step.
      3) If they are entering from 3 or 4 feet/1m off the surface of the water, a complete roll onto their tank is necessary.
      4) If you are assisting a diver such as a quadriplegic, then you must help them by either gently easing them into the water onto their shoulder, or take the tank valve in one hand, and the bottom of the tank in the other, and toss the tank and diver into the water so they land tank first.



      5) MODIFIED BACK ROLL:
         a. The diver lies on the deck and dons their weight belt.
         b. A two-person transfer is used to place the diver on the gunwale with one leg outboard and the other leg inboard.
         c. One person balances them, while the other person gets their scuba gear, places it on the gunwale and puts the diver's outboard arm into the BCD, then the inboard arm, and either independently or with assistance, they fasten the straps.
         d. With their mask on, their BCD fully inflated, their regulator in their mouth, and all of their gauges held clear, LIFT THE DIVER'S INBOARD LEG UP and OVER THE GUNWALE, causing them to roll into the water onto their back.

3. SURFACE SKILLS

1) Legs floating look and feel awkward, causes difficulty in communicating and turning over at the surface, and create problems in making a feet-first descent. One method for solving this problem is to place a SMALL amount of weight on the legs or feet. Coated or covered 6oz or 8oz fishing sinkers, placed inside the wet suit at the knee or inside the booties, is usually enough weight. Covering the weights with plastic sandwich bags makes them both easy to handle and easy to keep track of.

Using weights on the legs or feet is a last resort because they usually cause the student's feet to drag, creating difficulty in swimming and exploring under ledges, and along the bottom. The best solution to this problem is to develop a swimming technique for getting their legs under them and maintaining their balance in the upright position.

Use this technique for getting their legs under them. Lay the student on their back, have them reach back and with both hands, scoop deep into the water under them. This will pull the buttocks and legs down into the water. Two vigorous scoops followed by breaststrokes to swim over the descending legs, will usually get them into an upright position. Then they must maintain their balance in this position. This takes patience and practice.

2) Balance at the surface can be difficult because the SCUBA tank will pull the student onto their back. It takes significant effort to pull the SCUBA tank up out of the water onto the back and keep it there. The solutions to these problems are to counter balance the weight of the tank by placing the weights on the weight belt as far forward as possible & ensure their BCD fits snugly.

Use this technique for turning over: Reach for the bottom with hand and "grab a handful of water", then vigorously pull up to roll the body over, at the same time aggressively swing the other arm over the body to complete the roll action. It then becomes a balancing act to keep the tank up out of the water on their back. This takes patience and practice.

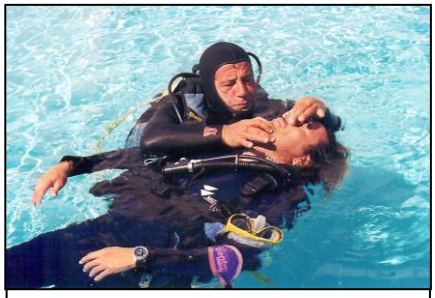
3) Surface Swimming for Mobility-Impaired.

a. For the mobility-impaired diver, swimming at the surface is best accomplished on their back for long distances, or face down in the prone position for locating a place to descend, and for snorkeling.

b. When swimming at the surface, the backstroke and breaststroke should be strong and sweeping, followed by gliding. This takes full advantage of the energy put into their stroke. Then as the gliding slows, keep the hands close to the body and bring them back into position for the next stroke.

4) Tired Buddy Tow for the Mobility-Impaired

1) A tired buddy tow that works really well is actually a tired buddy PUSH. In the prone position, place the tired buddy's fins on their shoulders, and using the breaststroke, push them to safety.



Bodrum Turkey, paraplegic diver tows and ventilates an unconscious diver.

5) In-Water Ventilation and Swimming Techniques for Mobility-Impaired Divers There are two techniques that work well for towing a victim while ventilating:

1) Reach across the victim's chest and hold their BCD shoulder strap with one hand, and swim with the other. This provides the rescuer with additional buoyancy while ventilating.

2) Chin tow: With one hand, cup the victim's chin, and swim using the other hand.

3) For both methods, the student pulls the victim toward them with their holding hand, pinches the victim's nose with their swimming hand, ventilate and then take three swimming strokes, and repeat.

4. UNDERWATER BUOYANCY SKILLS:

1) Because our lungs and BCD are both located above our waist where we place our weight belt, if we relax and do not kick, we end up diagonal in the water, not horizontal the way we would like to be. For the mobility-impaired diver, paraplegic, quadriplegic, and leg amputees, this is their normal position in the water. Being diagonal makes it difficult to swim and to look around under ledges where interesting things live. The solution to this problem is to redistribute the weights. That is, take weights off the weight belt and distribute them to other areas of the body.

2) Some suggestions for redistributing weight:

a. Use a pair of socks and place a weight inside each sock, tie them together, place them around the neck and tuck them inside the exposure suit.

b. Attach leg weights to BCD shoulder straps.

c. Have "weight pockets" built into the exposure suit at chest level.

d. Use devices that are manufactured for the purpose of redistributing weight, such as D.U.I.'s Weight and Trim system. Appendix C

Feet-first descent Megan uses ankle weights. Underwater her dive buddy moves her ankle weights to her knees for Buoyancy Trim.

3) The issue of buoyancy is much more complicated when we do not have total body movement and fins to compensate for the weight of tanks on our back, legs floating, legs sinking, poor distribution of weight, and buoyancy in general.

4) For the diver with a disability, absolute buoyancy control is essential for safe diving, and perfect *BUOYANCY TRIM* is essential for comfortable diving. The extra time spent on buoyancy will create a scuba diver who is safe and comfortable in the water, and easy on the environment.

5. DESCENTS AND ASCENTS:

a. Buoyancy Control is a must for safe descents and ascents. The diver must be in complete control and be able to stop and hover at any time during descent or ascent.

b. Descents begin with the diver neutrally buoyant at the surface, this requires the diver to EXHALE and swim with their hands and arms to begin the descent. The mobility-impaired diver must then control their descent by adding or releasing small amounts of air to their BCD.

c. Teaching Tip: Whenever diving with a mobility-impaired diver, such a quadriplegic or paraplegic, always tell them ‘Anytime you want to go up, tell me and we’ll go up.’ This gives the diver a feeling of control.

In addition to weights at the waist, Megan, HSA C-0455, has ankle weights attached to her BCD for Buoyancy Trim.

d. Ascents also begin when the diver is neutrally buoyant, this requires the diver to release, or add small amounts of air from their BCD during the ascent. For the mobility-impaired diver, this can be difficult because, they cannot compensate by swimming in the event that they release too much air and become negative during the ascent. Careful training in buoyancy control that includes adding and releasing small amounts of air from the BCD to descend can quickly teach your students buoyancy control.

e. This is a training method for "fine tuning" buoyancy and overcoming the fear of falling:

Take your student to the deep end of the pool with their BCD fully inflated. Have them position for a feet first descent and begin letting small amounts of air out of their BCD. When they are just underwater with their hair is floating on the surface have them exhale for their descent. Then have them inhale to stop their descent mid-water.

The result is they are concentrating on fine adjustments to their buoyancy, and using their lungs to control descents and stop in the water column. They will quickly learn buoyancy control and gain confidence in their ability to stop a descent 'at will'.

6. ASSISTED DESCENTS, ASCENTS, AND SWIMMING

a. DESCENT: Position the diver upright for a feet-first descent. Facing them, hold their BCD straps and push their legs down. Occasionally it is necessary to wrap your legs around the student's legs to maintain the upright position.

Maintain EYE CONTACT and release the air from your BCD first, then release the air from your student's BCD and descend. If you release the air from their BCD first, it will cause them to go onto their 'back' with you on top.

Maintain eye contact and neutral buoyancy at all times, you must be able to stop and hover at any time to check and clear your student's ears throughout the descent.

b. SWIMMING: When you reach dive depth you will both be neutral. Position the diver for swimming by switching your left hand to their left BCD strap, and then pull them into position while moving your right hand to their tank valve. This will allow you to control their body position, maintain eye contact, and have easy access to their auto inflator for buoyancy control.

c. ASCENT: To ascend, position the diver in an upright position, hold their BCD straps, and release some air from your BCD. Maintain eye contact and swim slowly, 30 feet/9m per minute to the surface, continuing to release air from your BCD first, then your student's as needed to maintain near neutral buoyancy at all times.

You must be able to stop and hover at any time in case of reverse squeeze, overhead obstructions and decompression stops. As you reach the surface, pull the student onto their back and inflate their BCD. Note: The assisted diver does NOT remove their regulator from their mouth until they are positively buoyant and are told to do so.

7. CONTROLLED EMERGENCY SWIMMING ASCENT (CESA)

a. To successfully complete an Emergency Ascent the diver must be <u>neutrally buoyant</u>.

b. While neutrally buoyant initiate CESA with vigorous upward swimming, exhale a stream of bubbles during the entire ascent and attempt to swim into the face-up position. Upon reaching the surface ONLY the divers' face should exit the water. To do this they must remain calm.
c. A person's head weighs approximately 18 pounds. If the diver thrusts their whole head out of the water gravity will push them back under the water. If the diver keeps their head in the water, exposing only their face to gravity, the water will support the weight of their head.
d. Attain positive buoyancy at the surface. With only their face out of the water; spit the regulator out, take a deep breath of air and recover the BCD Inflator mechanism.
e. Bring the Inflator to their mouth without raising their arm out of the water. If their arm is exposed to gravity it will push them back under the water.
f. Blow their lung full of air into the BCD. They will not lose any buoyancy, even though they may sink a little under the water, because their lung full of air is now in their BCD.
g. If they have sunk a little beneath the surface, calmly swim up until their face is out of the water, take a deep breath of air, retrieve the Inflator and blow the air into the BCD.
h. If they were neutrally buoyant to begin with, they will now be buoyant and able to finish orally inflating their BCD.
i. This skill development will teach the student three important lessons about safe diving.
    1. an out of air emergency procedure
    2. how to stay calm and solve problems under pressure
    3. importance of maintaining neutral buoyancy at all times throughout their dive

8. EMERGENCY SHARE-AIR ASCENT
a. Prior to beginning a share-air ascent, both divers must stabilize their breathing while sharing air stationary, and then agree to ascend. During the ascent both divers must breathe normally, or exhale continuously whenever they do not have a regulator in their mouth.
b. At the surface they will continue to share air while both divers attain positive buoyancy. To attain positive buoyancy the receiver orally inflates their BCD, and the donor auto-inflates their BCD while continuing to provide support to the out-of-air diver.
c. Do not lose contact until both divers are positively buoyant and comfortable.

9. SWIMMING UNDERWATER
a. The mobility-impaired diver usually has a problem with balance under water, in fact the tank will pull them onto their back. Weights placed forward on the body and a snug fitting BCD help counterbalance the tank, however, it takes repetitive training exercises designed to develop balance control and swimming techniques to swim comfortably under water.
b. If the diver gets turned onto their tank, the technique for turning over is as follows:
    i. Stretch one arm out to the side, with the palm of their hand up, use an arcing motion and pull up on the water.
    ii. Simultaneously, bring their other arm across the chest, turn the palm away from the body, and push in an arcing motion away from the body to turn over.
c. Swim Techniques.
    i. The mobility-impaired diver will use a Breaststroke when swimming under water. The stroke should be strong and sweeping, followed by 'gliding', as the diver slows, keep their hands close to the body, bring them back into position to stroke and glide.
    ii. Sculling: hands close to the body at hip level, use circular motion pushing water back toward feet moves diver forward. Diver can move close to reefs and marine life without damaging the reef or scaring off marine life.
    iii. The sight-impaired diver will swim using their fins the same way the sighted diver does. Under most circumstances, they will hold onto their buddy, & follow their lead. Pushing is disorienting because the student cannot 'sense' the changes in direction.

10. COMMUNICATION

a. Upper extremity impairments such as a bilateral hand/arm amputee, or quadriplegic resulting in very limited function of the hands and arms. The buddies for these divers must keep **VISUAL CONTACT** at all times so they can immediately 'read' body language, facial expressions, and pre-arranged 'charade' type communication signals. The handicapped diver must use ***LARGE MOVEMENTS*** to communicate with their buddy, such as nodding their head up and down for 'Yes' or from side to side for 'No'.
    i. Visual communication example: During a descent the diver your' assisting begins to shake their head from side to side for NO. Your first action is? To stop the descent and check for the most obvious problem, ear clearing. Simply point to your own ear, if this is the problem the diver nods yes and you solve the problem. If they continue to signal NO, then you have to think what else it could be, such as their regulator not functioning properly, give them the hand signal for out of air, or perhaps they are uncomfortable, give them the signal for up.

b. Hearing-impaired divers must keep **VISUAL CONTACT** at all times, both at the surface and underwater. Their buddies can learn some signing for better communicating, but be sure to teach the standard hand signals because this is what ALL divers understand.

c. Sight-impaired divers communicate at the surface by talking, but underwater communicating is through the TACTILE SIGNALS. When creating new signals, keep them simple and attempt to relate the tactile signal to the message you want to convey.

Julie, C-0041, sculling in close to a Fijian reef.

Teri assists Paul, her husband in Bonaire.

Lutty assists Dr. Phil 'The Reef Tripper', on a dive during an HSA trip to Bonaire.

Julia Dorsett, HSA A-0473, and Jim Gatacre diving at Bloody Bay Wall, Little Cayman,

SPECIAL CONSIDERATIONS IN CLASSROOM MATERIAL

- Gas Laws
- Sunburn and overheating
- Hypothermia
- Abrasions and tissue breakdown

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1. GAS LAWS AND DIVE TABLE USE

Disabilities such as spinal cord injuries can cause changes in circulation and neural tissue that may affect the use of no-decompression dive tables.

a. Circulation
   1) Under pressure, the reduced circulation in the affected area may be improved. If this were the case, theoretically nitrogen would be absorbed at a faster rate under water than it is off-gassed at the surface. This situation could result in the diver getting decompressions sickness even though they are within the no-decompression limits.
   2) However, the whole body is under the same pressure, and there is not a pressure differential that would cause circulation in the affected area of the body to improve relative to the unaffected area. So, theoretically up-gassing and off-gassing would be normal for them, that is, no unusual nitrogen build up in the affected tissue that would not off-gas during normal surface intervals.

b. Scar Tissue
   1) Scar tissue is more prone to decompression sickness than normal tissue. The area of the spinal cord that has been injured by trauma or disease is considered scar tissue. Therefore, a diver with a spinal cord injury could theoretically develop decompression sickness while within the no-decompression limits. This could cause further disability.
   2) The HSA has been training and diving with Spinal Cord injured people since 1975. Some of our divers such as Ken (T-1 complete), Norm (T-10 post polio), Larry (L-1 incomplete), and Roy (spinal injury due to decompression sickness) are extremely avid divers with over 10 years post-injury diving experience and none these divers have ever had decompression sickness that we are aware of.

c. Precautions: Use the tables conservatively! Always dive well within the no-decompression limits, make a three (3) minute safety stop at fifteen (15) feet/5m when diving 60 feet/18m or deeper, and slow the ascent rate to thirty (30) feet/9m per minute.

d. The new dive tables, such as the Canadian DCIEM Tables and the Buhlmann Tables, have precaution built into them, and these same conservative tables are used for most, if not all dive computers.

   With these safety margins built into most modern dive tables and computers the divers can use them without modification. However, even these tables must be used conservatively, that is, do not push the limits, be certain the ascent rate is 30 feet/9 m per minute and perform 3 minute safety stops at 15 feet/5 m for dives 60 feet/18 m or deeper.

2. SUNBURN and OVERHEATING

   Because this may be a new and exciting activity for your students they may "forget" the normal precautions they have developed for the sun and heat. It is therefore important to remind them and to teach them to make these precautions part of their dive planning.

   a. Sunburn, even on overcast days, is of great concern for those students with reduced circulation from injuries or disease such as spinal cord injuries and amputations. Sunburn can result in Hyperreflexia (Autonomic Dysreflexia) and decubiti in some cases, so it is very important that they advise their dive buddies and dive operators of this potential problem, use sun screen and have clothing and/or shade to protect them from the sun.
   b. Overheating may occur much faster for some students with disabilities such as spinal cord injuries and amputations. It is very important that you know and discuss this with your students. You must teach them to include prevention of overheating in their dive planning. Prevention would include such things as making their needs known to their dive buddies and dive operators, making arrangements for shade and regular, or as needed, cool downs with water.
   c. Dehydration for some spinal cord injured students could include, among other problems, increased risk of bladder infection. Other diseases such as MS and Diabetes have different risks. Your student must be advised of the risks, and taught to include in their dive planning good hydration practices. Hydration would include such things as making their needs known to their dive buddies and dive operators, and having adequate water supply available at all times.

3. HYPOTHERMIA
   a. Hypothermia can create symptoms that may not be recognized as hyperreflexia in those students and divers with spinal cord injuries that are susceptible to hyperreflexia. This is especially true on dive trips when there are multiple dives per day over several days. As the number of dives increase, the body's core temperature may drop and then not fully recover between dives.
   b. Mild hypothermia may cause hyperreflexia in the form of during, and post dive headaches. Students who are susceptible to hyperreflexia need to be advised of this potential problem, and taught to include in their dive planning hypothermia prevention.
   c. Hypothermia prevention would include making their needs known to their dive buddies and dive operators, increased protective clothing, such as a hood, torso vest, dry suit and warm after dive wear, increased time and/or hot liquids between dives, and keep well hydrated.

4. ABRASIONS and TISSUE BREAKDOWN
   a. Pool areas, boats and beach entry dive sites have hard and abrasive surfaces that can cause abrasions and tissue breakdown for people with reduced circulation from injuries such as spinal cord injuries and amputations. Potential for tissue breakdown is increased in these individuals after they have been in the water.
   b. Pool decks, pool bottoms, boat decks and boat toilet and shower facilities may have abrasive non-slip surfaces that a student or diver could easily scrape themselves on. Students and divers who are susceptible to tissue breakdown and decubiti must be advised of these potential injury risks, and taught to include in their dive planning tissue injury prevention.
   c. Tissue injury prevention would include advising their dive buddies and dive operators of the potential risk, inspecting pool, boat and dive site areas for hard and/or abrasive surfaces, covering at risk tissue with protective clothing, always having a padded area to sit on and covering abrasive surfaces, such as boat shower floors, whenever possible.

SPECIAL CONSIDERATIONS IN EQUIPMENT

1. WET SUITS
   a. For warmth the wet suit must fit well. People having problems putting them on can use a 'super stretch wetsuit' or lubricants such as baby powder, silicone spray, dive skins, panty hose or even plastic sandwich bags over their feet and/or hands.
   b. An "emergency type wet suit", a loose fitting wet suit made for quick donning with zippers along the legs, hips, torso, and arms that 'tuck' the neoprene into a tight-fitting wetsuit, is an option.
   c. Having a 'custom built wet suit' is another option. The most difficult part of putting on a wet suit is pulling over the hips and buttocks. The solution is to put in a zipper along the legs up over the hips. For redistribution of weights, they can build in 'weight pockets' on the wetsuit jacket and pants.

Emergency 'type' wetsuit, Japan.

2. WEIGHT SYSTEMS
   a. Using neoprene with a bail clasp works great, it should be adjusted lying down, stretched out and then fastened in a sitting position. This prevents its loss underwater. Expanding belt buckles with webbed belts work also. Be flexible, but keep the expanding midsection in mind. Weights should be as far forward on the belt as possible, to help keep the diver facing forward and down in the water.
   b. Proper fit and weight distribution is essential for safe and effortless diving.
   c. If the diver is held in the standing position, adjust the weights by putting some around the neck, using socks works well. If legs float too much, put a small amount of weight in the knee or in the booties. Fishing sinkers work well, 3oz/85g to 6oz/170g in plastic sandwich bags.
   d. Weight-integrated buoyancy control devices get the weights off the waist and position it higher and toward the front of the body.
   e. A weight harness, made by DUI (Divers Unlimited International) gets the weight off the waist and on to the shoulders. Appendix C

3. BUOYANCY CONTROL DEVICES
   a. The *TRADITIONAL* BCD design, (floatation distributed down the back and around the front midsection), with quick-release shoulder straps work best. An Inflator with *PNEUMATICALLY ASSISTED DEFLATION* is useful, especially for the diver who needs assistance with buoyancy control, or has balance and/or hand dexterity problems.
   b. Winged Horseshoe backpack BCDs at the surface push the mobility-impaired diver forward into a facedown position. It is very difficult for them to turn over onto their back, this is very dangerous. These types of BCDs are not recommended.

4. SWIMMING AIDS
   Webbed gloves used for surfing are excellent for students with good upper body strength. Appendix C

5. TANKS
   a. Use 80 ft^3/10 liter aluminum tanks, or other normal sized tanks. In the sitting position the shorter tanks, such as 50 ft^3/6 liter tanks, have to be held up or the person will be pulled over. Without stomach and/or back muscles the person has no control. The taller 80's provide a convenient back support.
   b. Heavy steel tanks, such as the Scubapro Steel 95, tend to rotate divers onto their backs, at the surface and underwater. This tank is not recommended.

Julie, and husband Zeke, prepare to dive. Julie is using webbed gloves and traditional BCD.

6. SNORKELS
   Use snorkels with a purge valve, they are easy to clear and this is especially important for someone with reduced respiratory function.

7. MOUTHPIECES
   a. The Comfo-Byte mouthpiece (by Aqualung) is available separately and can be put on most brands of regulators. For those divers with lip or jaw control problems, this mouthpiece grips the upper palate and will be more likely to stay in the diver's mouth.
   b. The Sea Cure Mouthpieces are 'perfect fits', scientifically designed by an orthodontist. Softened by hot water, then custom molded to fit the diver's mouth, they reduce jaw fatigue, stay easily in the diver's mouth, and resists bite-through.

8. MASKS
   Use standard masks, a good fit is most important. Sometimes a PURGE VALVE and/or low volume mask will be required to compensate for reduced respiratory and/or hand function. The new designs have the purge valve on the side so it will not interfere with pinching the nose for ear clearing. NEOPRENE MASK STRAPS are very helpful.

9. DRY SUITS
   Buoyancy control, there is more to deal with, advanced equipment, but in colder water they are GREAT! Worth the extra effort. We did not need leg weights when using the suit properly, introducing only enough air to prevent a squeeze. Air in the dry suit can shift to the feet, flipping the diver upside down. Expanding air can pull the diver to the surface "feet first". The method for correcting this is not possible for most mobility-impaired divers. To help eliminated this problem a small low-profile automatic dump valve can be installed at each ankle.

ACCESSIBILITY CONSIDERATIONS

Accessibility means that a person using a wheelchair can, without assistance, conveniently access and use all available facilities. However, the world is not a perfect place and not all environments such as resorts, beaches, boats, and restaurants will be barrier-free, so one must be ready to overcome barriers as they are encountered. Therefore, the following section on accessibility includes the basic requirements for true accessibility, as well as methods for overcoming typically encountered barriers.

1. BASIC FACILITY REQUIREMENTS
   a. Accessible Parking
      1) Handicapped Parking Spaces are wider than normal parking spaces so that wheelchairs can be moved into and out of their vehicles. This also prevents people from unknowingly blocking wheelchair access of their parked vehicles.

      2) Handicapped parking spaces are located near building entrances and curb cuts (ramps) leading to walkways. This is to eliminate wheeling behind parked vehicles. People are not used to looking out for people in wheelchairs, so it is important to provide a means for the wheelchair user to quickly and safely leave the parking area.

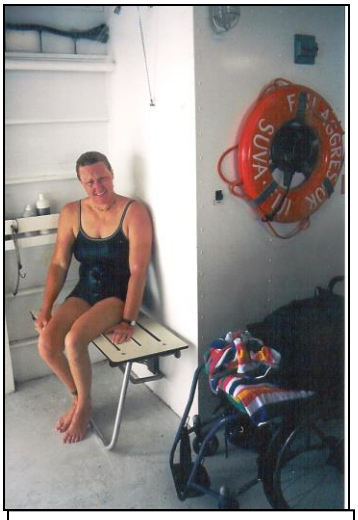
   b. Walkways, Ramps and Entryways
      1) Walkways: The ideal width of a walkway is 48 inches/120cm; the minimum width is 36 inches/90cm. The walkway should be smooth and level.
      2) The grade for a ramp is 5 degrees, that is, for each 1 inch/2.54cm of rise, 1 foot/30 cm of ramp length is required. For example, a ramp equivalent of two 5in/12cm steps would be 10ft/3m long. Most people can independently push up a 5-degree ramp, and not tip over backwards.
      3) Entryways

- Entryway ideal width is 32 inches/80 cm; this will allow all wheelchairs through. However, many people have custom wheelchairs that are much narrower; 26 inches/66 cm width is fairly common.
- Doors should open "OUT" of the room to 90 degrees. If a door does open "IN" to the room, a minimum open space of 36 inches/90cm next to the door, on the side nearest the door handle is necessary for wheelchair clearance.
- Photo Right, although there is a ramp to the door it cannot be opened because the door opens out and there is no clearance on the side nearest the door handle.
- Doors should be equipped with "lever" door openers in place of door "knobs". This allows a quadriplegic to independently open them.

c. Bathroom and Toilet Facilities

1) The minimum unobstructed turn around area for a wheelchair is 5 feet X 5 feet.
2) The minimum space between the toilet and one wall is 36 inches/90cm.
3) The door should open "out" of the room, if it opens in it may block the use of the facilities, such as the bathtub or sink. If this is the case, the door must be removed.
4) The ideal bathtub height for easy transfers is 22 inches/55 cm.
5) HAND-HELD SHOWERS with the control levers within reach of someone in a wheelchair.
6) A drain in the bathroom floor, so a person can shower in their Commode wheelchair.
7) A roll-in shower is the best bathing arrangement for someone using a commode wheelchair. A "shower bench" is needed for someone not using a commode chair.
8) Pipes under the washbasin must be covered to avoid burns.

Roll-in shower with "shower bench" folded-up left & hand-held shower.



Pat uses shower bench to shower on board the Fiji Aggressor during an HSA trip.

Tilt mirror, lever water control, sink roll-in height 29 inches, & the pipes are covered.

Bucket Theory is used when a roll-in shower is not available. Place 4 or 5 towels & bucket under the chair to catch water.

Bed height is 22 inches/55cm so transfer is straight across; to transfer up is difficult to impossible for most people. The bed has 36 inches/90cm access space next to it, and the telephone and light switch are within reach while in bed.

d. Pool Facilities

1) Are there barriers to the pool? Is there access into the pool, such as a ramp or hoist?
2) The ideal pool temperature is 85°F/30°C
3) Pool deck minimum wheelchair turn around width is 5 feet/150 cm.

di. Beach Access

1) Are there any barriers to the beach such as stairs?
2) What is the width of the sand beach? Is the sand soft or hard pack? A wheelchair can move over hard-packed sand.

dii. Resort/Hotel Accessibility

1) Often a resort will have a 'ramp system' throughout the facility. It is there to accommodate their maid service and maintenance carts. This can go a long way toward making the resort wheelchair accessible.
2) The Resort/Hotel Evaluation Form (page 83 Standards & Procedures) is provided for your use as a convenient way of evaluating the accessibility of a resort or hotel facility.
3) Even if all barriers are not removed, the information obtained from the Resort/ Hotel Evaluation Form can used by a diver with a disability to assess the level of inconvenience they may encounter. Then they can make an informed decision as to whether or not they would enjoy the destination.

4) The Resort Evaluation Form was developed by four HSA members with unique experience.
    - Michelle Galler (C-0006), a wheelchair user who scuba dived extensively throughout the world, is a certified Master Cruise Ship Inspector and Barrier Removal specialist. She evaluated over 40 cruise ships.
    - Julie Perez (C-0041), a wheelchair user who has scuba dived extensively throughout the world, and is the former Barrier Removal specialist for Santa Barbara County.
    - Denise Dowd (CD10-0010), an occupational therapist for over 20 years, with duties that include home accessibility evaluation for her patients.
    - Jim Gatacre (CD1-0001), HSA founder, with over 30 years of in experience training, traveling and diving with people who use wheelchairs.
    - Go to Page 83 in Standards & Procedures – ***Resort Evaluation Form***

2. BEACH USE: STAIRS, SAND & SURF

Variations from the ideal should be expected, so methods for solving accessibility problems need to be developed as you go. Following are a few methods for overcoming commonly encountered barriers.

A. STAIRS: Often there are stairs between you and a good dive site, a restaurant, or other facilities that could be and should be used and enjoyed. Some methods for overcoming these barriers are:

a. Going down stairs in a wheelchair with assistance. A helper gets behind the wheelchair and 'pops a wheelie', that is, they hold the backrest and tip the wheelchair back onto its rear wheels. Then, facing the stairs, they continue to hold the backrest with the chair tipped back and ease the chair down the stairs forward, one step at a time. The person in the wheelchair can significantly assist by 'holding back' on the wheelchair push rims.

For safety, another helper is needed in front of the wheelchair to ensure that it does not tip so far forward that the person falls out of it. They are there for security, and should hold onto the frame of the chair, but not lift up on it, because the weight of the person in the chair is then pushed back onto the helper controlling the descent or ascent.

b. Going up stairs in a wheelchair with assistance. The procedure is reversed. A helper gets behind the wheelchair 'pops a wheelie' then pulls them up the stairs backwards.

c. Going up/down stairs out of the wheelchair with assistance. This is done with one helper and it does require the mobility-impaired individual to have good upper body strength.

The mobility-impaired person sits on the floor or ground with their back to the stairs. They then reach back and place their hands on the first step up. As they use their arms to lift themselves up the step the helper holds both of their legs and simultaneously lifts and then pushes them back onto the step. Be careful to not lift their legs too high because it will tip the person backwards and they will not be able to lift themselves. Going down the stairs, reverse the process.

e. Some individuals may get out of their wheelchairs and use their arms to go up and down stairs without assistance.

B. CROSSING THE SAND

This is a difficult task; however, by using an appropriate method the sand is negotiable.

a. The best methods are for the person to get out of the wheelchair. This saves wear and tear on the chair, and is usually easier to do.
b. The person with strong upper body can scoot sea lion style across the sand.
c. If the person does not have strong upper body they can be pulled through the sand by reaching under their arms and sliding them backwards.
d. To use the wheelchair, 'pop a wheelie' and pull them backwards through the sand, they help by pulling back on the push rims.

3. BOAT ACCESS, BOARDING and ONBOARD ACTIVITIES

a. Boarding boats almost always requires the person to be carried on board.

b. CAUTION: lifting someone while they are in their wheelchair is very dangerous. If their chair tips too far forward, or one of the carriers trip, the person could be thrown from it.

c. Wheelchairs are sometimes used on board, but not necessarily. It is an individual matter, based on available space and need. Some people need their chair for balance. If they are able, it is easier to scoot around.

d. For the sight-impaired, be aware of obstacles, such as equipment left lying around. Familiarize them with the layout of the boat by taking them around and explaining where and what things are. Have someone available for them at all times.

"*DIVING INDEPENDENCE MEANS DIVING **ANY BOAT***"
Larry Thompson, diver with a disability.

4. ACCESSIBLE DIVE BOAT

a. The dive platform is a most important consideration. The dive platform should extend out far enough to accommodate a diver in the seated position, and have enough space to allow 2 assistants to help the diver into and out of the water. The minimum dimensions are 3 feet/1m X the width of the transom, and clear of obstructions such as ladders. The dive platform should be even with the water for easy entry and exit from the water.

b. The transom should be open to the deck with wide steps of 12 to 18 inches/45cm in height. This enables helpers to easily transfer the person to and from the dive platform.

c. The deck should have enough space to allow a person in a wheelchair to freely move around. To comfortably turn around in a wheelchair they need a minimum space of 5 feet/1.5 meters X 5 feet/1.5 meters, with 4 feet wide walkways. There should be an area on deck with shade and when possible, the deck should be even with the dock or pier for easy boarding.

very accessible. Wide unobstructed dive platform, 18 inch steps to the deck, plenty of deck space and a large shaded area.

SPECIAL CONSIDERATIONS IN OPEN WATER TRAINING

1. BEACH ENTRIES, EXITS AND RESCUES

A. ENTRIES:

On the beach, move to the point of entry, don Scuba and inflate BCD to positive buoyancy.

a. Unassisted entry, using their arms, they face the water and push themselves forward until it is deep enough to swim. Then they turn onto their stomach and use a combination of pulling along the bottom and the breaststroke to swim out. Have them do it on snorkel because the regulator air is dry making it difficult to breathe.

- If there is SURF, wait to enter on small sets and use the backwash to get out before the next wave breaks. Swim until they are past the large sets. If they get caught in a wave, have them count to themselves to reduce anxiety.
- Get in tune with energy of the water, moving forward with the energy; try to maintain position when being pushed back. DO NOT OVER-WORK!

b. Assisted entry through the surf, have them sit with their backs to the waves, stand behind them with your fins placed on either side of them and grasp the tank valve. If they can, have them lift with their arms while you pull them into the water. When the water is deep enough begin swimming. You will be under them with your head next to theirs so you can talk to them, give directions and issue assurances.

B. EXITS

a. SURF Unassisted: Swim into the backside of the large sets of breakers. You can feel the pull on the back of the wave toward the beach. Swim further into the backside of the small breakers, get into the "tow" of the wave and swim with it. It will break in front of them, pulling them along. The next wave will break behind them, and the white water will push them in.

b. SURF Assisted: Hold the person by the BCD strap, with them in the prone position on snorkel and you on your back. Hold onto them until they are in white water, then let them go to be pushed up onto the beach by the waves.

C. RESCUES

a. Approach the victim, turn them over by pulling their arm down and lifting the opposite shoulder over, take their mask off and ventilate stationary until stable. Swim with free arm, three strokes, 1-2-3, on 4 pinches nose, on 5 ventilate.

b. Enter the Surf Zone on the backside of a wave. Cover the victim's nose and mouth if a wave is going to wash over them.

c. Use the forward energy of the breakers to push them onto the beach, moving the victim when there is water is under them.

2. BOAT DIVING
   A. Equipment control is essential. This is the responsibility of the diver; even if they are blind they can tell someone where to put their equipment.
   B. Protective clothing, wet suits:
      a. Small boats, short ride, wet suit bottoms are usually put on before getting on board.
      b. Large boats usually mean longer rides. For bathroom needs and comfort, they usually put on wet suits prior to arriving at the destination, starting 30-45 minutes prior to arrival at the dive site. Set-up equipment and be prepared to dive before the boat reaches the dive site.
      c. Get yourself completely set-up and ready to make your entry so you can enter the water as soon as the divers are in. Keep your timing so people do not overheat on deck or get cold from being in the water without activity.
      d. This is the practical method, later with experience your students may be the first ones in the water. On trips to resorts, divers should come out of their rooms dressed and ready to dive.
   C. ENTRIES: Don weights, tank and BCD at the ***POINT OF ENTRY*** and make sure that the dive buddies are ready at the same time as the handicapped divers. As already discussed, there is a tendency NOT to be, and remember to stay aware of their overheating and/or getting chilled.
      a. Boats where the giant stride is used:
         - Mobility-impaired: Modified Front-Roll at the normal point of entry with their BCD inflated and regulator in their mouth, and be careful to protect the ear on impact.
         - Sight-impaired, use the giant stride.
      b. Small boats,
         - Enter the water over the gunwale (side of boat), using a Typical Back-Roll or a Modified Back-Roll while straddling the gunwale, or on something of equal elevation.
         - Hard-side boats, such as a Row Boat, place a bench even in height with the inside wall of the boat at the point of entry. Proceed as above, as if you have a gunwale wide enough to straddle.
         - Inflatable boats, don equipment on the deck, then lift up to the side and roll the diver into the water in one movement.
   D. EXITS (from the water)
      a. For all boats, take the equipment off in the water. Start with the weight belt, BCD and tank. Leave the mask and snorkel in place, and exit the water.
      b. For quadriplegics, and divers with weak upper body, position them on their back, remove the weight belt and unfasten all straps on the BCD. Use the BCD as a float while a helper on the dive platform or inside the boat secures the diver with their hands under the arms. The dive buddy in the water then pushes their BCD out of the way, and positions their body upright at the exit point. The in-water buddy drops under the water holds their legs above the knee, keeping them straight, they kick with their fins and push the diver up. At the same time, the helper on the dive platform, or in the boat, lifts them up and secures the diver on the dive platform, or in the boat.
      c. Flat, Caribbean Style Boats: For mobility-impaired diver. Exit the water at the dive platform and transfer onto the deck face first. The helper will lift them under the arms and pull them forward onto the deck. The legs may hang up, so a second helper can lift the legs to straighten the body. Some boats will be 2 to 3 feet/60cm to 90cm up to the deck, but use this same method. Some paraplegics and leg amputees can exit out without assistance.

e. Larger, California Style Boats: Some have several steps to the deck, so have one person on the swim-step, grasp them under the arms around the chest, and lift them up to where a second helper can grasp their arms at the wrist and pull them onto the deck, while the first helper lifts the person by the legs with the buttocks on one shoulder. The person being helped should be facing the helper on the deck, so they can communicate. The legs may need to be lifted as the person uses their elbows to crawl forward onto the deck. Turn them over and place them in a sitting position.

f. Small boats: Exit the water over the gunwale. An able bodied diver with fins grasps the person by the legs, with their buttocks on one shoulder. The person should then hold the side of the boat in the usual way. A bob to get the momentum, the helper uses their fins "kicking them up". A second helper on board may be necessary if the gunwale is high or the person has weak upper body strength, such as a quadriplegic.

e. Equipment control: Once back on board, the equipment needs to be gathered together and organized "immediately". Mobility and sight-impaired divers are not able to dash around and find things just before the dive, as easily as organized able-bodied divers. If they are not organized, chances are *you* will be looking around trying to find *their* equipment.

3. CURRENTS:

A totally equipped able-bodied SCUBA diver in good shape with fins, can only swim at a speed of approximately 1½ knots for a brief period of time, and that is not a real fast current. So dive smart, if the current is too much, swim to the surface and have the boat pick you up.

Entries through the Surf are difficult, and for the handicapped diver the challenge is greatly enhanced. It is hard to say who is having more trouble here, Larry, who is paraplegic, or Gatacre his instructor!

APPENDICES

Appendix A: ORGANIZATIONS

HSA INTERNATIONAL TRAINING CENTERS
HSA Training Centers are satellite organization that have an HSA Course Director on staff and are qualified to conduct HSA Instructor Training Courses (ITC). Training Centers are qualified to train and certify HSA Open Water & Advanced Scuba Divers, Dive Buddies, Dive Masters, Assistant Instructors and Instructors. They are also available for Instructor referral, training advice and various other related services.

FIND HSA DIVE BUDDIES, INSTRUCTORS & COURSE DIRECTORS:
www.hsascuba.com Click on 'Find an Instructor'

GEORGIA AQUARIUM – IMMERSION PROGRAM
Susan Oglesby, Assistant Manager
225 Baker Street NW
Atlanta, GA 30313
+ 404-581-4130
soglesby@georgiaaquarium.org

Felicia Kostecky
THE HSA PARAQUADICS TEAM
St. Catharines, ON Canada
Mobile: 905.704.8495
www.paraquadics.com
https://www.facebook.com/pages/HSA-Paraquadics-Training-Team/1413388965576897

EELS ON WHEELS
Austin, Texas 78723 USA
Telephone: +512-867-5121 http://www.eels.org

FREEDOM AT DEPTH
2 Rue De L'escale
Gatineau, Quebec J8Z 3R2 Canada
Telephone: +613-866-1143 or hchretien@freedomatdepth.ca

HANDICAPPED SCUBA DIVING ALLIANCE
16 AFTON RD.
JACKSON, NJ 08527
stew@hsdanj.com
http://hsanjscuba.com/wp/

Appendix B:

VOLUNTEER PROTECTION ACT OF 1997

105th CONGRESS, 1st Session

H. R. 1167

To grant immunity from personal civil liability, under certain circumstances, to volunteers working on behalf of nonprofit organizations and governmental entities.

IN THE HOUSE OF REPRESENTATIVES

March 20, 1997

Mr. Inglis of South Carolina introduced the following bill; which was referred to the Committee on the Judiciary.

A BILL

To grant immunity from personal civil liability, under certain circumstances, to volunteers working on behalf of nonprofit organizations and governmental entities.

Be it enacted by the Senate and House of Representatives of the USA in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ``Volunteer Protection Act of 1997".

SECTION. 2. FINDINGS AND PURPOSE.

The Congress finds and declares that--

(1) the willingness of volunteers to offer their services is deterred by potential for liability actions against them and the organizations they serve;

(2) as a result, many nonprofit public and private organizations and governmental entities, including voluntary associations, social service agencies, educational institutions, and other civic programs, have been adversely affected by the withdrawal of volunteers from boards of directors and service in other capacities;

(3) the contribution of these programs to their communities is thereby diminished, resulting in fewer and higher cost programs than would be obtainable if volunteers were participating; and

(4) because Federal funds are expended on useful and cost-effective social service programs, many of which are national in scope, depend heavily on volunteer participation, and represent some of the most successful public-private partnerships, protection of volunteerism through clarification and limitation of the personal liability risks assumed by the volunteer in connection with such participation is an appropriate subject for Federal legislation.

(b) Purpose. The purpose of this Act is to promote the interests of social service program beneficiaries and taxpayers and to sustain the availability of programs, nonprofit organizations, and governmental entities that depend on volunteer contributions by reforming the laws to provide protection from personal financial liability to volunteers serving nonprofit organizations and governmental entities for actions undertaken in good faith on behalf of such organizations.

SECTION. 3. PREEMPTION.

This Act preempts the laws of any State to the extent that such laws are inconsistent with this Act, except that this Act shall not preempt any State law that provides additional protections to volunteers or category of volunteers from personal liability in the performance of services for a nonprofit organization or governmental organization.

SECTION. 4. LIMITATION ON LIABILITY FOR VOLUNTEERS.

(a) Liability Protection for Volunteers.--Except as provided in subsections (b) and (d), no volunteer of a nonprofit organization or governmental entity shall be liable for harm caused by an act or commission of the volunteer on behalf of the organization or entity if--

(1) the volunteer was acting within the scope of the volunteer's responsibilities in the nonprofit organization or governmental entity at the time of the act or omission;

(2) if appropriate or required, the volunteer was properly licensed, certified, or authorized by the appropriate authorities for the activities or practice in the State, in which the harm occurred, undertaken within the scope of the volunteer's responsibilities in the nonprofit organization or governmental entity; and

(3) the harm was not caused by willful or criminal misconduct or a conscious, flagrant indifference to the rights or safety of the individual harmed by the volunteer.
(b) Concerning Responsibility of Volunteers to Organizations and Entities.—Nothing in this section shall be construed to affect any civil action brought by any nonprofit organization or any governmental entity against any volunteer of such organization or entity.
(c) No Effect on Liability of Organization or Entity.--Nothing in this section shall be construed to affect the liability of any nonprofit organization or governmental entity with respect to harm caused to any person, except that in an action brought on the basis of such liability punitive damages may not be awarded against such organization or entity unless the harm was proximately caused by the action of a volunteer of such organization or entity which was willful or criminal or a conscious, flagrant indifference to the rights or safety of the individual harmed.
(d) Exceptions to Volunteer Liability Protection.--If the laws of a State limit volunteer liability subject to one or more of the following conditions, such conditions shall not be construed as inconsistent with this section:
(1) A State law that requires a nonprofit organization or governmental entity to adhere to risk management procedures, including mandatory training of volunteers.
(2) A State law that makes the organization or entity liable for the acts or omissions of its volunteers to the same extent as an employer is liable for the acts or omissions of its employees.
(3) A State law that makes a limitation of liability inapplicable if the volunteer was operating a motor vehicle, vessel, aircraft, or other vehicle for which the State requires the operator or vehicle owner to possess an operator's license or to maintain insurance.
(4) A State law that makes a limitation of liability inapplicable if the civil action was brought by an officer of a State or local government pursuant to State or local law.
(5) A State law that makes a limitation of liability applicable only if the nonprofit organization or governmental entity provides a financially secure source of recovery for individuals who suffer harm as a result of actions taken by a volunteer on behalf of the organization or entity. A financially secure source of recovery may be an insurance policy within specified limits, comparable coverage from a risk pooling mechanism, equivalent assets, or alternative arrangements that satisfy the State that the organization or entity will be able to pay for losses up to a specified amount. Separate standards for different types of liability exposure may be specified.
SECTION. 5. DEFINITIONS.
For purposes of section 4:
(1) Economic loss.--The term ``economic losses'' means objectively verifiable monetary losses, including past and future medical expenses, loss of past and future earnings, cost of obtaining replacement services in the home (including child care, transportation, food preparation, and household care), cost of making reasonable accommodations to a personal residence, loss of employment, and loss of business or employment opportunities.
(3) Non-economic losses.--The term ``non-economic losses'' means losses for physical and emotional pain, suffering, inconvenience, physical impairment, mental anguish, disfigurement, loss of enjoyment of life, loss of society and companionship, loss of consortium (other than loss of domestic service), hedonic damages, injury to reputation and all other non-pecuniary losses of any kind or nature.
(4) Nonprofit organization.--The term ``nonprofit organization'' means any organization described in section 501(c) of the Internal Revenue Code of 1986 & exempt from tax under section 501(a) of such Code.
(6) Volunteer.--The term ``volunteer'' means an individual performing services for a nonprofit organization or a governmental entity who does not receive--
(A) compensation (other than reimbursement or allowance for expenses actually incurred); or
(B) any other thing of value in lieu of compensation, in excess of $300 per year, and such term includes a volunteer serving as a director, officer, trustee, or direct service volunteer.

SECTION. 6. EFFECTIVE DATE. Section 4 applies to any claim for harm caused by an act or omission of a volunteer filed on or after the date of enactment of this Act, without regard to whether the harm that is the subject of the claim or the conduct that caused the harm occurred before such date of enactment.

Appendix C: VENDORS

AK Amputees: The Otto Bock Swimming Leg by Otto Bock Orthopedic Industry, Inc.

BK Amputees: The VAPC Swim/Walk ankle, Kingsley Manufacturing Company 1984 Placentia Avenue, Costa Mesa, California 92672 TEL: 949-645-4401

Swim Ankle: Scuba dive, Swim, Row and Snow Ski.
RAMPRO, INC; Leucadia, CA
E-mail: swim@rampro.net Website: http://rampro1.com/

Webbed Gloves: BLACK LAGOON PRODUCTS – DARKFIN GLOVE & THERMALFIN GLOVE
Knoxville, TN www.darkfingloves.com

SPEEDO; Aquatic Fitness Gloves with side Zipper
640 Bandini Blvd.; Los Angeles, CA 90040
www.speedo.com * service@speedo.com *stores@speedo.com

Grip Socks: Austin, TX www.sandsocks.com email: g.marsh@sandsocks.com

Diveways Aquabuzzer: Sight impaired

Diveways Aquabuzzer. When tank pressure drops to set pressure, 35bar (505psi), 50bar (725 psi) or 70bar (1025psi),"bubbles" & "buzzer sounds" are generated to warn the diver & their buddy. The amount of air consumed to make bubbles and sounds is extremely small. This function can be stopped or restored with the touch of a button.

Weight Harness: "Weight & Trim System" from DUI, San Diego, CA

For quadriplegics, paraplegics & amputees: distribution weights.
www.dui-online.com * CustomerService@dui-online.com
DUI also makes thigh Weights Pouches for lead shot bags that strap to thighs or ankles, for perfect distribution of weight.

Misty Mate:

Great Range of Personal Misters And Misting Systems; www.mistymate.com

Sharkskin Chillproof Wetsuits, Booties & Gloves

Sharkskin Chillproof garments provide 2.5-3mm of insulation, & is Neutrally Buoyant. Sharkskin is made of high quality 4 Way Stretch Material, making it easier to don and easier move & swim. http://sharkskin.com

Black Mask for ITC or DBC Blind Simulation:

Made for Cave Dive Training they completely black-out your dive mask, and they are comfortable. http://santidiving.com/product/black-mask/

Sign Language Manuals:

1. SeaSigns, Underwater Sign Communication Course, classes available in Person or on Video. www.SeaSigns.com, info@seasigns.com, TEL/Fax: +727-518-7152
2. Sign Language Manual for Scuba Divers , BEST Publishing Co. +800-468-1055.

Appendix D: RESOURCES

WOUNDED WARRIOR COMBAT STRESS RECOVERY PROGRAM

http://www.woundedwarriorproject.org/programs/combat-stress-recovery-program.aspx

ASKING FOR HELP IS STRENGTH NOT WEAKNESS!

The Combat Stress Recovery Program (CSRP) addresses the mental health and cognitive needs of warriors returning from war. CSRP provides services at key stages during a warrior's readjustment process.

While post-traumatic stress disorder (PTSD) and combat/operational stress are common after war-time experiences, Wounded Warrior Project™ (WWP) approaches these issues from the warrior's perspective. We understand the stigma attached to mental health, access to care, and interpersonal relationship challenges.

Our approach to meeting mental health needs of warriors is two-fold:

We challenge warriors to think about goal-setting and understanding their "new normal." Many warriors begin their journey with Project Odyssey, an outdoor, rehabilitative retreat that promotes peer connection, challenging outdoor experiences, and healing with other combat veterans.

We assist warriors in navigating mental health resources that help process their combat experience. Restore Warriors™ is an online tool that teaches warriors more about the invisible wounds of war. Videos of fellow warriors sharing their own experience and strategies, self-assessment tools, and exercises provide valuable insight into readjustment challenges.

BIBLIOGRAPHY – POST TRAUMATIC STRESS (PTSD)

- U.S. Department of Health and Human Services
- National Center for PTSD, U.S. Department of Veterans Affairs
- The National Institute of Mental Health
- U.S. National Library of Medicine
- Mayo Clinic
- MedlinePlus, National Institutes of Health

NATIONAL MULTIPLE SCLEROSIS SOCIETY
New York City chapter 30
West 26th St NY, NY 10010

MULTIPLE SCLEROSIS TREATMENT

UNIVERSITY OF SHERBROOKE, Quebec, Canada, developed a treatment program 10 years ago called Dynamic Adaptive Physical Education. Because inactivity for MS patients leads to the development of life-threatening diseases, these diseases must be combated with “activity”, and participation in normal daily life. Through their Walking and Wheelchair Schools they have had great success.

For information: www.usherb.ca/apsp or www.callisto.si.usherb.ca:8080/apsp

Appendix E: DIABETES

Landmark research on scuba diving with diabetes has been done at Camp DAVI, the Diving Association of the Virgin Islands. The results of that research were presented at NAUI's 1992 International Conference on Underwater Education , in a paper "Diving Safely with Diabetes", the source of the following:

1. Definition
   "Diabetes mellitus is a metabolic disorder due to either insufficient production of insulin by the pancreas or the impairment of the body tissue to respond to the insulin that has been produced. Insulin stimulates the transport of sugar (glucose) into the cells of the body so that it can be used. Glucose provides the energy necessary for cells of the body to function properly. Without adequate insulin, glucose increases in the bloodstream causing high blood sugar (hyperglycemia). In contrast, if there is too much insulin present relative to the amount of food eaten, or exercise performed, low blood glucose (hypoglycemia) develops. Hypoglycemia can occur quickly and impair a diver's judgement and ability to function underwater. However, hypoglycemia has recognizable symptoms and can be prevented or easily treated.
2. Hypoglycemia
   "Maintaining blood glucose as close to normal as possible without episodes of hypoglycemia is the ultimate goal of each person with diabetes. When the blood glucose falls below a critical level, hypoglycemia develops and produces symptoms of
      1) Hunger, Light headedness Nervousness or shaky feeling, Sweating, Glazed eyes, and Loss of mental acuity.

   "If left untreated, these symptoms can result in loss of consciousness, and seizures. The symptoms are progressive but will diminish when the blood glucose is raised. If an individual is diving, a rapid response is necessary with the first appearance of the symptoms in order to prevent accidental drowning.
3. Hyperglycemia occurs when the blood glucose elevates above normal. Symptoms are
      1) Increased thirst, Frequent urination, and Increased hunger.

   Causes of such blood glucose fluctuations include stress, exercise, food intake, and insulin dose. 2) Severe hyperglycemia indicates that blood glucose control is inadequate. Ketone bodies are present in the urine when the body can no longer compensate for the lack of insulin. Hyperglycemia causes dehydration, and thus increases the risk of complications in the scuba diver. When urine ketones are present, diving must be postponed until the glucose returns to satisfactory levels and the urine clears of ketones."
4. The Camp DAVI project developed these guidelines for a dive student's acceptance into the diving instruction program:
      1) Insulin-dependent diabetes with no secondary complications of the disease, such as retinopathy, cardiovascular disease, and/or nerve damage.
      2) No other acute or chronic illness that would add a safety risk.
      3) Documented recent medical examination by a physician, who gives approval for scuba diving. A physical examination form has been developed specifically for this purpose.
      4) No hospitalizations in the previous 12 months for insulin reactions, or ketoacidosis.
      5) Participates in a regular exercise program.
      6) Able to swim 200 yards nonstop
      7) Accepts responsibility for diabetes control
      8) Safely and accurately performs blood glucose monitoring procedure without supervision.
      9) Able to recognize hypoglycemia in self and others, and responds quickly and appropriately.

5. Hypoglycemia prevention
   "Three blood glucose measurements must be done before water entry.
   1) The first blood glucose test is performed one to three hours prior to the dive,
   2) The second occurring 30 minutes to one hour prior to the dive.
      The last measurement is performed at water entry.
   3) The blood glucose is also measured immediately post dive. Once these glucose measurements are recorded, the diver can determine how his blood glucose is managed for future dives.

   Additional blood glucose measurements may be necessary to guide the diver in documenting the glucose pattern. In order to be successful in managing the dive, each diver must know what physical exertion will be required, how stress is handled in an activity, and what food intake or insulin adjustments are necessary to complete the dive.
6. "Dive preparation must include
   1) an estimate of the physical exertion expected during the dive,
   2) the length of time away from the camp area,
   3) Glucose gel, extra food,
   4) blood glucose meter
7. A doctor's involvement is a MUST. Noting that evaluation of the blood glucose pattern is an integral part of the diving experience, the paper's authors required that medical personnel be on hand for each dive in their study to evaluate the patterns.
8. Hypoglycemia treatment - the "L" hand sign
   "Confusion is a common symptom of hypoglycemia. If any diver recognizes that his ability to make decisions is altered, or his buddy diver notices a change in personality, this suggests a hypoglycemic reaction.

   When this occurs, the L hand sign, meaning " low blood glucose", must be given. The "L" hand sign is the letter L in finger spelling (see page 21). If a diver does not respond readily to "Are you OK?" then it is assumed that hypoglycemia is being experienced. Each participant takes responsibility to talk frequently underwater to ensure that his buddy diver is constantly aware of his condition.

   Every person in the dive group must carry in their BC pocket two tubes of glucose gel which is used to treat hypoglycemia. If any diver signals the "L" low-blood glucose hand sign, the buddy team surfaces. While ascending, the buddy must retrieve the glucose gel, and prepare it for use. Treatment begins immediately upon reaching the surface. The diver must then return to the boat to rest, monitor blood glucose, and complete the intervention necessary to return the blood glucose to normal."

   "Diving Safely with Diabetes", the complete paper by Rebecca P. Winsett, RN, MSN, of University of Tennessee, Memphis; Wendy Kendrick, RN, MSN, of the University of Alabama, Birmingham; Stephen Prosterman, of the University of the Virgin Islands; and Dr. George Burghen, of the University of Tennessee, Memphis; can be found in the conference proceedings of NAUI's International Conference on Underwater Education, October 1992. Or write to Rebecca P. Winsett, RN, University of Tennessee Medical Center, 951 Court Avenue B312, Memphis, TN 38163 for their paper and/or for information on participation in the Camp DAVI project.
9. Because of the high risk involved, EXTREME caution must be used, and in many cases it appears to be inadvisable for diabetics to SCUBA dive.

APPENDIX F

ASTHMA

(Not included in Lectures)

1. Overview:
   a. It affects approximately 3% of the population.
   b. It may be responsible for more than 2,000 deaths a year, and only impairments of the spine and mental conditions cause more activity limitations.

2. Cause of an asthma attack is an obstruction of the air passage in the lungs. During an attack, the muscles around the air passages constrict, the lining of the air tubes becomes inflamed and mucous is produced, creating difficulty in breathing.

3. Symptoms of an asthma attack are principally shortness of breath, wheezing and coughing. Attacks may be mild or so severe as to be life threatening through asphyxiation.

4. Cautions: In the asthmatic, the air passages are hyperactive to irritants. Viral and bacterial infections, pollen, exercise, stress, cold air, stings from fire coral or jelly fish can cause an attack..

5. Exercise-Induced-Asthma (EIA) occurs most often in children and adolescents, but is present to some extent with most asthmatics, regardless of age.
   a. The type of activity that produces EIA is continuous and moderately intense, such as running. Swimming is the least likely sport to provoke an attack, even in those who are prone to it. In fact, it is the exercise most frequently prescribed by doctors for asthmatic activity programs.
   b. The severity of bronchial-constriction following exercise decreases if the air breathed during exercise is humidified, regulators like the Sherwood Oasis or Blizzard may help.

6. Contraindications for diving:
   a. During an asthmatic attack they can usually breathe air into their lungs, but because of bronchial-constriction, they may not be able to breathe out. This can lead to lung rupture and air embolism.
   b. They may have mucous plugs in their alveoli that can trap air under pressure. This can also lead to lung rupture and air embolism.
   c. Asthma attacks can be brought on by an outdoor activity following a sudden change to cold weather, during rain or a sudden drop in barometric pressure, such as surfacing after a dive.

7. CASE HISTORY, Howard Pruyn:
   a. Howard has Asthma and Emphysema, he claims he became better after he began diving in 1968. A dive shop owner since 1972, he is a NAUI and PADI Instructor, and has logged thousands of dives. He has never had an attack underwater. For prevention he uses a steroid inhaler that lasts up to 14 hours.
   b. Pruyn's suggests these equipment considerations:
      1) He must keep warm, so he uses a wetsuit in warm water, and a dry suit in cold water.
      2) Uses a good, easy breathing regulator.
      3) Uses large fins to prevent the diver from kicking fast, which prevents overworking.

8. Due to the extreme risks involved, the student must be evaluated by a physician that understands their disability and the effects of Scuba diving. In many cases, it may be inadvisable for asthmatics to dive.

CANADA

PRIME MINISTER.PREMIER MINISTRE

April 29, 2002

To whom it may concern:

I believe that the strength of a society directly reflects the character and spirit of its citizens. The strong society is one whose citizens care about and work to enhance the quality of life of all of their neighbours. By giving so freely of their time to such a worthy cause for 20 years, the members of the Handicapped Scuba Association (HSA) have shown that they clearly share this philosophy.

Each passing year finds new breakthroughs in our shared awareness of the importance of enabling Canadians with disabilities to partake fully in all that life has to offer and to develop their unique potential. The HSA is empowering those for whom the physical, social and recreational enjoyment of diving might other wise have been foreclosed.

I commend the HSA for this pioneering work.

Jean Chrétien

APPENDIX H

FREEDOM IN DEPTH

Presented by
THE HANDICAPPED SCUBA ASSOCIATION WITH JEAN-MICHEL COUSTEAU 1984

This Dive Film Classic was made in 1984, and depicts typical California cold water diving. There are 18 HSA divers with disabilities in the film, and the disability range covers Bi-lateral amputee, Blind, Cerebral palsy Hemiplegic, Paraplegic and Quadriplegic.

The film was funded by DEMA under Bob Gray, and Jean-Michel Cousteau, with the consent of his father, Jacques Cousteau, agreed to be the host of Freedom in Depth. This was, and is, an extraordinary endorsement because the Cousteau's only appear in Cousteau films.

The film took two years to produce, so we have HSA divers as students that by the end of the film are experienced advanced divers.

While watching the film you will see many important special techniques regarding equipment, boats, and skill development. Watch for the following:

a. Disability types, equipment set-up and movement poolside.
b. Front roll entries. Pool, paraplegics.
c. Mask removal and recovery. Pool, one-handed hemiplegic.
d. Emergency Buoyant Ascent. Pool, paraplegic.
e. Buddy breathing ascent. Pool with two paraplegic divers.
f. Underwater Rescue of an unconscious diver, weight belt removal, controlled ascent, set-up for ventilation and tow while ventilating. Pool, able-bodied diver rescued by a paraplegic diver.
g. Blind diver assembling Scuba guided by his hands & knowledge of equipment.
h. Several ways to descend stairs and cross the beach by mobility impaired divers.
i. Paraplegics scooting across sand.
j. Open water towing and ventilating through the surf by paraplegic and blind divers.
k. Surf entries by paraplegic divers.
l. Boat logistics, independently assembling scuba, and movement about the boat.
m. Front roll entries from the boat.
n. Buoyancy controlled descents.
o. Mask removal & replacement by quadriplegic diver, and buddy breathing ascent.
p. Underwater swimming & ascent techniques.
q. Transporting equipment with wheelchair.
r. Night diving, underwater vehicle, river rapids drift diving, and deep wreck diving.

DVD Price: $35.00

APPENDIX I

TO FLY IN FREEDOM

Presented by
THE COUSTEAU SOCIETY AND THE HANDICAPPED SCUBA ASSOCIATION 1992

This is Jean-Michel Cousteau's film. This is his view, as a long-time supporter of HSA, of what we do. He challenged me to make a new film at an HSA Fundraiser, "A Caribbean Night with Jean-Michel Cousteau", and we did, in Fiji, with the Cousteau dive team and the Cousteau Alcyone wind ship as our base. The film was completed in 1992, the 50th Anniversary of Scuba diving!

Astronaut Buzz Aldrin, Jean-Michel Cousteau, and Jim & Pat Gatacre during "Caribbean Night" fundraiser.

One of the most powerful parts of this film is when Jean-Michel interviews his Father, Jacques-Yves Cousteau. In this interview it becomes clear why the Cousteau's have been so supportive of HSA, and what a person can gain from Life-changing events in their life.

While watching this film you will also see many special techniques regarding equipment, swimming, assisting divers both on land and in the water. Watch for the following:

a. Assisted exit from airplane, with their equipment.
b. Boarding the inflatable, notice two person transfers & wetsuit with gussets in arm.
c. Terry boarding inflatable from wheelchair. He is post-polio & has leg movement.
d. Boarding dive boat from inflatable, notice transfers.
e. On-board donning wetsuits using plastic bags, lying down putting on weights, assisted mask donning, notice dive equipment used & transfers to dive platform.
f. Entries from dive platform
g. Assisted descents "begin a slow descent" Gatacre & Michelle, Denise & Julie.
h. Assisted swimming, Gatacre & Michelle.
i. Buoyancy control & swimming, sculling & breaststroke with webbed gloves.
j. Gusseted wetsuit arms unzipped, Sakuko with Jean-Michel.
k. Fiji Village, social interaction and wheelchair use.

Finally, you will see Jean-Michel Cousteau lay on top of a Reef. This is NOT a living part of the reef he is laying on. This is a shallow reef, with the top completely damaged from storms, and other environmental impacts. Jean-Michel has spent his life protecting the oceans, so one must accept his judgment.

DVD Price: $35.00

Appendix J

Reaching Out
Finding & Promoting Scuba for People with Disabilities

I. Promoting: Offer 'HSA Introduction to Scuba', *leading to* > *Scuba Certification*, to various organizations that support people with disabilities, such as sports groups, disability type associations, rehabilitation hospitals, and veterans groups. See below

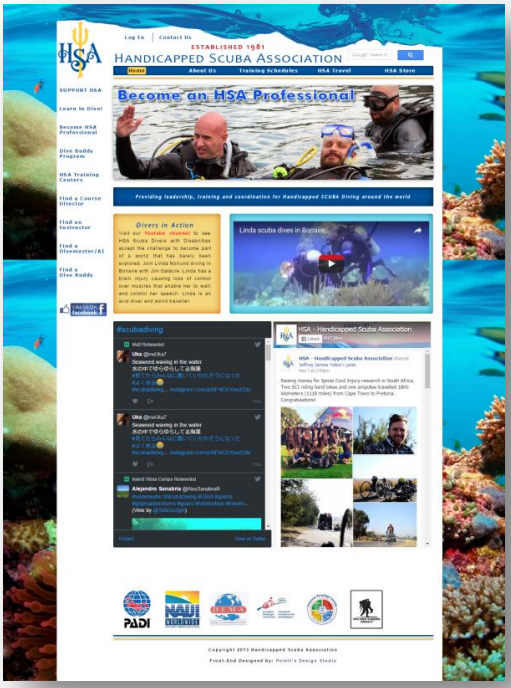
This is more than a *discover scuba experience*, 'HSA Introduction to Scuba' is a *learning experience*. The Intro includes disability issues, such as transfers & padded surfaces, written for the participants with disabilities to direct those helping them how to do it correctly. This approach is involving & empowering, quickly getting the point across that HSA Instructors understand their special needs, a concern that keep many people with disabilities from becoming Scuba Divers.

II. These following organizations that support people with disabilities are the USA market; look for similar opportunities in your area.

III. Where to find them;

1. Rehabilitation Hospitals & Centers
2. National Spinal Cord Injury Association (NSCIA)
    a. Lists NSCIA Hospital Members by State
    b. Good resource for questions regarding SCI (SCI = Spinal Cord Injury)
    c. www.spinalcord.org
3. www.SCI-Infopages.com/rehabs.html
    a. Lists Rehabilitation Facilities by State
4. VA Hospitals – Rehabilitation Department
    a. http://www.va.gov/directory/guide/division_flsh.asp?dnum=1
        i. Map with VA Hospital contacts by State
5. Associations for various disability types – *G*oogle it!
    a. Blind
    b. Deaf
    c. Spina Bifida
    d. Cerebral Palsy (CP)
    e. Muscular Dystrophy (MD)
    f. Multiple Sclerosis (MS)
6. Sports Groups
    a. Wheelchair Basketball
        a. USA National Wheelchair Basketball Association; www.nwba.org
        b. Canada NWB; www.wheelchairbasketball.ca
        c. British WB; www.gbwba.org.uk
        d. International Wheelchair Basketball Federation; www.iwbf.org
    b. Disabled Sailing, Water Skiing, Surfing, Kayaking
7. Disabled Sports USA – Founded by Viet Nam Veterans
    a. There are many chapters throughout the USA
    b. They serve everyone, veterans & non-veterans
    c. www.disabledsportsusa.org

HSA WEBSITE FEATURES



HSA WEBSITE FRONTPAGE

Tabs on left

- Support HSA
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- Become an HSA Professional
  - Course Director
  - Instructor
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HSA WEBSITE MEMBERS AREA

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- Admin/Instructor Home
- Renew Membership
- Update Insurance
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- Training Mats
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Quick Links – Orange Box Left

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HANDICAPPED SCUBA ASSOCIATION INTERNATIONAL

INSTRUCTOR MANUAL

STANDARDS & PROCEDURES

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HANDICAPPED SCUBA ASSOCIATION INTERNATIONAL
STANDARDS & PROCEDURES
INTRODUCTION

Of great importance to the safety of handicapped divers is the application of measurable training standards. Obviously, performance standards used by nationally recognized diver-training agencies have to be altered to accommodate various types of disabilities. The question is, how can this be done safely, and how should these changes be evaluated?

These were the concerns of the Diving industry that prompted the Disabled Divers Workshops.
The development of the HSA Physical Performance Standards began with the DISABLED DIVERS WORKSHOP**,** held in Columbus Ohio November 1982, by the COUNCIL FOR NATIONAL COOPERATION IN AQUATICS, CNCA. CNCA wrote the first physical performance standards for recreational SCUBA diving.

Members of CNCA had become concerned over the training of people with disabilities because it was obvious that these students were not being trained according to the current industry standards. This was the reason for the Disabled Divers Workshop, to determine just how the industry standards were being modified, and to evaluate the safety and effectiveness of the altered methods used to train students with disabilities.

The first DISABLED DIVERS WORKSHOP was chaired by Dennis Graver, at that time PADI's Education Specialist. There were three days of intense discussions with leading professionals in underwater education. Some of those professionals such as Bob Smith and Dr. Glen Egstrom had been involved with CNCA in the development of the first Physical Performance Standards used to train the recreational Scuba diver.

The workshop determined that it would NOT be sufficient to simply modify the industry Physical Performance Standards, but rather that a new set of COMPARABLE STANDARDS would have to be developed to accommodate the special needs of disabled divers. The Disabled Divers Standards Committee was formed to accomplish this.

DISABLED DIVERS STANDARDS COMMITTEE
DENNIS GRAVER, chairman PADI Education Specialist
JIM GATACRE, coordinator HSA President
GWEN GARRETT McDonald Moray Wheels occupational therapist
DR. HARRY HEINITSH, MD. Diving Medicine specialist
LARRY THOMPSON, paraplegic HSA Assistant Instructor

HSA NATIONAL ADVISORY BOARD
DENNIS GRAVER PADI Educational Specialist
JOHN STEWART PADI Educational Specialist
WALT HENDRICK, SR. NAUI Training Director
JIM HICKS NAUI Training Director

A tentative set of standards were developed by this staff and presented at another Disabled Divers Workshop held in March 1983 by the UNDERSEA MEDICAL SOCIETY in Bethesda, MD. Attending, in addition to the Disabled Divers Standards Committee staff, were Walt Hendrick, Sr., NAUI's National Training Director; medical doctors specializing in diving medicine, handicapped divers and instructors who had trained handicapped divers.

This second workshop revealed that the training and certification revolved around a central issue, Buddy Dependency. To what degree could a disabled diver function as a buddy? Could they assist another diver in distress? How much, and what type of assistance would they need from their buddy? The new Performance standards, therefore, had to challenge the student sufficiently to bring out their degree of buddy dependency as well as their ability to help another diver in distress.

The final phases of development were conducted by the HANDICAPPED SCUBA ASSOCIATION. The TENTATIVE Physical Performance Standards created by the Disabled Divers Standards Committee were put to practical application.
The HSA Physical Performance Standards, and Multilevel certification, evolved over a two and a half period, through several actual training classes where Research and Development was conducted. These classes were well balanced in age, gender, aquatic experience and disabilities. Students included amputees, paraplegics, quadriplegics, hemiplegics, sight-impaired, and cerebral palsy. After each practical application of the Performance Standards, they were revised and submitted to the HSA NATIONAL ADVISORY BOARD (HNAB) for review, recommendations, and eventual approval.
The final HNAB approved version of these highly refined HSA Physical Performance Standards and Multilevel Certification are in use today to train and certify students with disabilities worldwide.

COURSE STANDARDS

How the HSA Performance Standards are used.

These standards are designed for use within a normal Open Water SCUBA Course. The need for individual attention depends upon two factors; aquatic comfort level and the effect the handicap has on their ability to perform the physical requirements of the course. It is important to note that because of this, two people with the same disability may have totally different abilities in the water.

Additional confined and open water training sessions may be necessary, and in some cases the person may need private instruction. However, every attempt should be made to "mainstream" them into a regular SCUBA class at some point in their training.

The swimming evaluation, administered at the beginning of the Open water SCUBA Course, provides an opportunity to assess what additional attention the student with a disability may need. Note: this is an evaluation, not a performance requirement.

- The 220 yard/200 meter swim reveals the persons swimming ability, their endurance and their response to aquatic stress created by becoming tired.
- The 10 minute survival swim demonstrates their ability to relax in deep water.
- The 50 feet/15 meter, or 30 seconds underwater swim demonstrates their comfort underwater.

Based on this evaluation the HSA Instructor can enter the student into a SCUBA class in the usual way, or assign a safety diver to compensate for their apparent need, or teach them in a private class.

The HSA Physical Performance Standards are designed to accommodate the needs of students with disabilities. They should be practiced throughout the course of instruction until the student becomes proficient in performing them. Although at times it may seem impossible for the student to perform these skills, with patience and persistence practiced by the student and instructor, most will be able to master them and become safe SCUBA divers.

Multilevel Certification, an explanation:

Based on the student's ability to successfully challenge the HSA Physical Performance Standards, the HSA developed the Multilevel Certification. This is a PERFORMANCE-BASED method of assessing and accommodating the disabled diver's specialized needs.

It is IMPORTANT TO NOTE that ONLY the Buddy System is affected by this certification procedure. All other sport diving requirements and activities are the same as for any diver.

The Multilevel certification system is for the protection and safety of ALL members of the dive team. That is, the THIRD DIVE BUDDY in the dive team is NOT for the B or C Level diver, they are there for the other A Level or above dive buddy.

LEVEL A
The student has successfully challenged all of the HSA Physical Performance Standards, demonstrating that he or she can safely SCUBA dive, solve basic personal emergencies, help another diver in distress, and perform basic rescues.

They have shown, by successfully challenging these standards, that they can perform the skills required to be an effective Buddy and are certified to dive with one other certified SCUBA diver.

LEVEL B
The student has successfully challenged those HSA Physical Performance Standards that demonstrate their ability to safely SCUBA dive, and to solve basic emergencies. However, they are unable to successfully challenge those Performance Standards that demonstrate their ability to help another diver in distress.

Therefore, the LEVEL B diver is certified to scuba dive with TWO DIVE BUDDIES who are certified Open Water Level A or above. In the case of an emergency, this system will provide an effective dive buddy for all members of the dive team.

LEVEL C
The student has successfully challenged those HSA Physical Performance Standards that demonstrate their ability to safely scuba dive. However, they are unable to successfully challenge those performance standards that demonstrate their ability to independently solve basic personal emergencies, or to execute basic scuba skills, such as descending, swimming underwater, and operating their own Buoyancy Control Device.

The TYPE OF SKILLS that must be performed ***for*** them, such as operating their Buoyancy Control Device, require the Assisting Buddy to have skills beyond that of the ordinary open water diver. Therefore, they are certified to dive with TWO DIVE BUDDIES, one certified Level A or above, and an Assisting Buddy, certified at the minimum as a RESCUE DIVER. It is recommended that the Assisting Buddy be an HSA Certified OPEN WATER DIVE BUDDY or ABOVE.

LEVEL C with 'CONDITIONS'
It is required that the Assisting Buddy is an adult of the parents' or legal guardians' choice, who knows them well and can predict their reaction.

This certification is for those students who are immature, intellectually or emotionally impaired, or for some reason are unable to demonstrate understanding of 'required academic materials' currently used in industry accepted academic programs.

Course Standards: HSA Open Water Skin Diver & Snorkeler

1. GENERAL

This course is the basic HSA entry-level certification course in Skin Diving / Snorkeling. It is designed to accommodate a wide variety of disabilities while maintaining a high level of safe diving practices.

2. COURSE OBJECTIVES

This program is a complete entry-level certification course in Skin Diving /Snorkeling offering three (3) levels of certification based on the student's ability to fulfill HSA performance requirements.

3. QUALIFICATION OF GRADUATES

When successfully completed, course graduates will be considered competent to engage in open water Skin Diving and/or Snorkeling activities without direct supervision, providing:

a. Skin Diving /Snorkeling activities approximate those in which the diver was trained.
b. Dive site environment and conditions resemble those encountered during training.
c. Skin Divers and Snorkelers comply with all HSA recommended diving procedures.

4. WHO MAY TEACH

This course may be taught by a Handicapped Scuba Association Instructor or Diver Master in good standing with teaching activity status.

5. PREREQUISITES FOR ENTERING COURSE

a. No prior certification is required, however it is recommended that familiarity with the aquatic medium and basic swimming skills be acquired prior to course enrollment.
b. Minimum age for Open Water Skin Diver and Snorkeler Certification is 8 years old.
c. Student must provide written approval from a medical doctor attesting to their fitness for Skin Diving/Snorkeling activities.

6. REQUIRED ACADEMIC MINIMUMS

a. Minimum academic requirements meet or exceed the academic requirements currently used in your training agency's Skin Diving /Snorkeler academic program.
b. Special considerations for spinal cord injuries and amputees. [Academics section]
    1) Tissue breakdown, hypothermia and sunburn.
    2) Overheating and dehydration.
c. Student Sign-offs of the HSA Liability & Expressed Assumption of Risk, Inherent Hazards & Risks, Guidelines for Safe Skin Diving/Snorkeling and Multi-Level Certification forms for Skin Diving/ Snorkeling in a classroom setting and after an explanation and debate. If the student is a minor the above documents will be signed by them (if possible) and by their parent or legal guardian in the above defined classroom setting.
d. Prior to confined & open water training all students must complete the HSA Medical History Form. If their response is yes to any condition listed they must be examined & approved for skin/snorkel diving by a Physician.

7. REQUIRED COURSE MINIMUMS

a. The number of classroom hours is determined in accordance with the teaching standards set by the diver training agency through which the instructor has received their underwater teaching certification.
b. Confined in-water training time is dependent upon the student's needs. Recommended minimum 2 hours. No maximum. Student must be completely trained.
c. Open water dives - two Skin Dives and or Snorkel Dives with 30 minutes diving activity.
d. Find and identify 5 Marine Life Forms

Course Standards: HSA Open Water Scuba Diver

1. GENERAL

This course is the basic HSA entry-level certification course in SCUBA diving. It is designed to accommodate a wide variety of disabilities while maintaining a high level of safe diving practices.

2. COURSE OBJECTIVES

This course is a complete entry-level certification course in SCUBA diving offering three (3) levels of certification based on the student's ability to fulfill HSA performance requirements.

3. QUALIFICATION OF GRADUATES

When successfully completed, course graduates will be considered competent to engage in open water skin and SCUBA diving activities without direct supervision, providing:

a. Diving activities approximate those in which the diver was trained.
b. Dive site environment and conditions resemble those encountered during training.
c. Diver complies with all HSA recommended diving procedures.
d. Maximum sport diving depth of 130 feet/ 40 meters.

4. WHO MAY TEACH

This course may be taught by an active Handicapped Scuba Association Instructor in good standing.

5. PREREQUISITES FOR ENTERING COURSE

a. No prior certification is required, however it is recommended that familiarity with the aquatic medium and basic swimming skills be acquired prior to course enrollment.
b. Minimum age for Open Water SCUBA Diver Certification is 15 years old. Students, age 10 through 14 may be accepted into this course in accordance with HSA Junior Open Water SCUBA Diver course standards.

6. REQUIRED ACADEMIC MINIMUMS

a. Meet or exceed the academic requirements currently used in your current academic program.
b. Alternatively, the HSA students may demonstrate academic knowledge enabling them the understanding and performance of the requirements as set for the students' level of certification.
c. Knowledge tests may be written or oral. The instructor will correct and review the answers with the student to ensure they understand the required materials covered, and the exam. Answers and review will be retained with the students' records for seven years.
d. Special considerations for spinal cord injuries and amputees. [Academic section]
    1) No-decompression limits.
    2) Tissue breakdown, hypothermia and sunburn.
    3) Overheating and dehydration.
e. Special considerations for students with intellectual disabilities.
    1) Students that are unable to demonstrate understanding of the required academic materials currently covered in your academic program are only eligible for C level certification with the condition that they must dive with two buddies, one of whom is an adult of the parents' or legal guardians' choice, who knows them well, understands their limitations and can predict their reaction.
f. Student Sign-offs of the HSA Liability and Expressed Assumption of Risk, Inherent Hazards & Risks, Guidelines for Safe Diving and Multi-Level Certification forms in a classroom setting and after an explanation and debate. If the student is a minor and/or legally incompetent the above documents will be signed by them (if possible) and by their parent or legal guardian in the above defined classroom setting. [NOTE: Incompetent is the legal term for someone who, due to cognitive or emotional disability, is in the custody of a parent or legal guardian, and cannot sign a legally binding document.]

7. REQUIRED COURSE MINIMUMS

a. The number of classroom hours is determined in accordance with the teaching standards set by the diver training agency through which the instructor has received their underwater teaching certification.
b. Confined in-water training time is dependent upon the student's needs. Recommended minimum 8 hours. No maximum. Student must be completely trained.
c. Open water dives - five (5) SCUBA dives. Open water training is to be conducted on more than one (1) day.
d. Prior to any Open Water Scuba dives the following Performance Requirements must be completed. I.C.5, 14, 15, 20, 21, 22, 23, 31, and 36.
e. Prior to confined & open water training all students must complete the HSA Medical History Form. If their response is yes to any condition listed they must be examined & approved for diving by a medical doctor.
f. NOTE: The HSA highly recommends that the Instructor carry the HSA Scuba Diver confined and open water training slates during confined and open water training.

Course Standards: HSA Junior Open Water Scuba Diver

1. GENERAL

This course is identical to the HSA BASIC OPEN WATER SCUBA DIVER Course.

2. COURSE OBJECTIVES

This course is a complete entry-level certification course in SCUBA diving for youths 10 to 14 years of age. Three (3) levels of certification are offered based on the student's ability to fulfill the HSA performance requirements.

3. QUALIFICATIONS OF GRADUATES

When successfully completed, course graduates will be considered competent to engage in open water skin and SCUBA diving activities WHEN DIVING WITH AN ADULT OF THE PARENTS' OR GUARDIANS' CHOICE, who has received a Level A or above Open Water SCUBA Diver Certification from a nationally recognized diver training agency, providing:

a. Diving activities approximate those in which the junior diver was trained.
b. Dive site environment and conditions resemble those encountered during training.
c. The Junior Diver complies with all HSA recommended diving procedures.
d. MAXIMUM SPORT DIVING DEPTH of 60 feet/18 meters.

4. WHO MAY TEACH

This course may be taught by an active Handicapped Scuba Association Instructor in good standing.

5. PREREQUISITES FOR ENTERING COURSE

a. No prior certification is required, however it is recommended that familiarity with the aquatic medium and basic swimming skills be acquired prior to course enrollment.
b. The age requirement is 10 to 14 years old, however each student is REQUIRED TO EXHIBIT THE MENTAL AND PHYSICAL MATURITY of a fully certified HSA Open Water SCUBA Diver.

6. REQUIRED COURSE MINIMUMS

This course is identical to the HSA Open Water SCUBA Diver Course.

7. CONVERSION OF CONDITIONAL JUNIOR CERTIFICATION

At age 15 the Junior Diver may request any teaching HSA Instructor to convert the conditional Junior Certification to an Open Water SCUBA Diver. The instructor who handles the conversion may, at their discretion, require a review, practice and evaluation of skills and knowledge.

Course Standards: HSA Advanced Scuba Diver

1. GENERAL
This course is the HSA Advanced-level certification course. It is designed to evaluate and insure that advanced level diving skills have been mastered.

2. COURSE OBJECTIVES
This course is an advanced-level certification course in Scuba diving offering three levels of certification based on the students Open Water level of certification. That is a Level A, B or C diver can earn and an advanced certification.

3. QUALIFICATION OF GRADUATES
When successfully completed, course graduates will be considered competent to engage in open water skin and SCUBA diving activities without direct supervision, providing:

a. Diving activities approximate those in which the diver was trained.
b. Dive site environment and conditions resemble those encountered during training.
c. Diver complies with all HSA recommended diving procedures.
d. Junior diver complies with HSA Junior Open Water Scuba Diver Qualifications.

4. WHO MAY TEACH
An active Handicapped Scuba Association Instructor in good standing may teach this course.

5. PREREQUISITES FOR ENTERING COURSE

a. Certified as an HSA Level A, Level B or Level C Open Water Scuba Diver, or equivalent certification.
b. Certified as an HSA Junior Open Water Scuba Diver Level A, Level B or Level C Scuba Diver, or equivalent certification.

6. REQUIRED ACADEMIC MINIMUMS

a. Plan and execute a deep dive, a night dive and a wall/mid-water dive.
b. Navigational techniques, including topographic and compass methods.
c. Local marine life identification.
d. Air sharing techniques including octopus back-up regulator, integrated air source, buddy breathing and mid-water buddy breathing.
e. Sign-off HSA Guidelines for Safe Scuba Diving & Inherent Hazards & Risks of Diving Activities in a classroom setting.
f. Complete HSA Advanced Scuba Diver Open Book Exam with 80% or greater correct answers.

7. REQUIRED COURSE MINIMUMS

a. Complete Academic Requirements.
b. Open Water dives; complete the following five (5) supervised SCUBA dives.
    1) Plan and perform a DEEP DIVE 85 to 100 feet (26 to 30 meters), solve 3 math problems, and/or tie 3 different knots at the deep dive depth. [Note: Junior Open Water Maximum depth is 60 feet/18 meters]
    2) Plan and perform a NIGHT DIVE.
    3) Plan and perform a WALL or MID- WATER DIVE.
    4) Plan and perform a NAVIGATION DIVE, using topographic and compass methods.
    5) Plan and perform a MARINE IDENTIFICATION DIVE. Identify 5 local marine life forms.
c. Prior to confined & open water training all students must complete the HSA Medical History Form. If their response is yes to any condition listed they must be examined & approved for diving by a medical doctor.
d. Student Sign-offs of the HSA Liability and Expressed Assumption of Risk, Inherent Hazards & Risks, Guidelines for Safe Diving and Multi-Level Certification forms in a classroom setting and after an explanation and debate. If the student is a minor and/or legally incompetent the above documents will be signed by them (if possible) and by their parent or legal guardian in the above defined classroom setting.

Course Standards: HSA Open Water Dive Buddy

1. GENERAL
This course is the HSA Open Water Dive Buddy Certification Course. It is designed to prepare certified Open Water Scuba Divers, and above, to be effective and safe dive buddies for certified Scuba divers with wide variety of disabilities.

2. COURSE OBJECTIVES
This Course is a complete Certification Course in buddy diving with divers with disabilities.

3. QUALIFICATION OF GRADUATES
When successfully completed, course graduates will be considered competent to dive with and assist in open water Skin and Scuba diving activities with certified divers with disabilities, providing that:

a. Diving activities approximate those in which the diver was trained.
b. Dive site environment and conditions resemble those encountered during training.
c. Diver complies with all HSA recommended diving procedures.
d. Dive buddy is an HSA member in good standing.

4. WHO MAY TEACH

An active Handicapped Scuba Association Instructor in good standing may teach this course.

5. PREREQUISITES FOR ENTERING COURSE

a. Minimum Certification of OPEN WATER SCUBA DIVER.
b. Minimum of twenty (20) logged scuba dives, within two years prior to the starting date of Dive Buddy Course.
c. Minimum rescue skills. Successfully challenged HSA Physical Performance Standards or equivalent. I C. 41 & 42; II C. 31 & 32 or equivalent Performance Standards.
d. Minimum air sharing skills. Successfully challenged HSA Physical Performance Standards or equivalent. I. C. 26, 27, 28, 31 & 32; II.C. 21, 22 & 24 or equivalent Performance Standards.

6. REQUIRED ACADEMIC REQUIREMENTS

a. Complete all HSA Open Water Dive Buddy Lectures in HSA Dive Buddy Manual
b. Complete HSA Dive Buddy Course Open Book Exam with 80% or greater correct answers
c. Follow HSA Dive Buddy Course Teaching Guide & PowerPoint Presentation
d. HSA Dive Buddy Manual required for certification

7. REQUIRED COURSE MINIMUMS

a. The number of classroom hours is determined by the time required to complete all of the HSA Dive Buddy Course Lectures. Recommended minimum 6 hours.
b. The number of confined water hours is determined by the time required to complete all of the HSA Dive Buddy Course Confined Water exercises. Standards & Procedures pages 75-80 Recommended minimum 6 hours.
c. Number of Open Water Dives sufficient to complete all of the HSA Dive Buddy Course Open Water exercises. Standards & Procedures 81-81
    i. NOTE: The HSA highly recommends that the Instructor carry the HSA Dive Buddy Confined and Open Water Training Slates during confined and open water training.
d. Prior to training all participants must complete:
    i. HSA Medical History Form. If their response is yes to any condition listed they must be examined & approved for diving by a medical doctor.
    ii. HSA Inherent Hazards & Risks, Liability and Expressed Assumption of Risk, and Guidelines for Safe Diving forms.
    iii. If the participant is a minor the above documents will be signed by them and their parent or legal guardian.
e. Enrollment and Registration Forms are available on the HSA Website Instructor Download Page.

8. DIVE BUDDY LEADERSHIP COURSE –Standards & Procedures

For those who continue their underwater education and are certified by a recognized diver training agency as Instructor, Assistant Instructor or Dive Master, they can upgrade to HSA Instructor, Assistant Instructor or Dive Master by successfully passing the Dive Buddy Leadership Course taught by an HSA Course Director in good standing.

PHYSICAL PERFORMANCE REQUIREMENTS
Open Water Scuba Diver

The following Confined and Open Water Physical Performance Requirements must be performed COMFORTABLY and to an "ADEQUATE" level of proficiency. The Skin Diving Skills must be successfully challenged for Skin Diver certification. The Scuba Diving Skills must be successfully challenged for Scuba Diver certification. Five qualifying Scuba dives are required for Scuba Diver certification.

REQUIREMENTS TO QUALIFY AS A SCUBA DIVE AND A SKIN DIVE

- ❑ SCUBA DIVE: Enter and Exit the water, with a minimum of twenty (20) minutes bottom time.
- ❑ SKIN DIVE: Enter and Exit the water, with a minimum of thirty (30) minutes skin diving activity.
- ❑ SNORKEL DIVE: Enter and Exit the water, with a minimum of thirty (30) minutes snorkel diving activity.

ORGANIZATION OF PERFORMANCE REQUIREMENTS

1. The Performance Requirements are arranged in two (2) main sections:
    a. I. Confined Water, page 11
    b. II. Open water, page 15
2. The Confined Water section is divided into three (3) subsections: (Any calm body of water with conditions similar to a swimming pool, with a bottom no greater than 20 feet/6 meters)
    a. IA. Swimming Skills, page 11
    b. IB. Skin Diving Skills, page 11
    c. IC. Scuba Diving Skills, page 12
3. The Open Water section is divided into two (2) subsections: (Any open body of water with a depth of at least 15 feet/4.5 meters, excluding pools.)
    a. IIB. Skin Diving Skills, page 15
    b. IIC. Scuba Diving Skills, page 16

To refer to a specific Performance Requirement we use its location. For example I.B.12 is located in the Confined Water section, Skin Diving subsection, number 12, and II.C.35 is located in the Open Water section, Scuba Diving subsection, number 35.

SCUBA DIVER CERTIFICATION LEVEL B and LEVEL C

1. Each Performance Requirement is marked according to its role in determining what Level of certification the student diver will achieve.
2. Performance Requirements marked [R] are REQUIRED and must be performed for any level of certification.

    FOR EXAMPLE: I.C.22, breathe from a free-flowing regulator. This skill cannot be compensated for, so the diver MUST be able to perform this skill, if they cannot they will NOT be certified.
3. Performance Requirements marked [B], if one or more of these are NOT successfully challenged the student becomes a candidate for Level B Certification.

    FOR EXAMPLE: I.C.11, use the buddy system. If the diver is blind they cannot maintain the Buddy system, they are certified Level B so that every member of the dive team has a buddy.

1. Performance Requirements marked [C-SPR (Special Performance Required)] are REQUIRED and must be performed for certification, but the diver can receive help from their buddy. If they need assistance they will become a candidate for Level C Certification.
   FOR EXAMPLE: I.C.14, buoyancy controlled descent. Of course the diver must descend, but they can receive assistance from their buddy. This is very complicated, controlling buoyancy for oneself and another diver, as well as insuring the diver being assisted is comfortable and possibly clearing their air spaces for them. So, they become a candidate for Level C certification, because of the skill required of their assistant.

2. Some Performance Requirements have two (2) Levels, B & C, possible, while others only a portion of the standard may be omitted.
   FOR EXAMPLE: I.C.28, breathe underwater using an integrated alternate air source power inflator regulator…, Only the 'Donor of Air' may be omitted because 'Receiving Air' cannot be compensated for, so they become a candidate for Level B certification, or no certification if they are unable to be the 'receiver of air'.
   FOR EXAMPLE: I.C.31, alternate air source ascent. If they cannot perform as Donor, but are successful as the Receiver of Air, they become a candidate for Level B Certification. If as the Receiver of Air they cannot orallȳ inflate their BCD at the surface, they become a candidate for Level C Certification, because of the complications for their buddy orally inflating another divers BCD in an out of air emergency.

SKIN DIVER and SNORKEL CERTIFICATION LEVELS [SA-Skin Diver skills, SB & SC B & C level Snorkeler]
The Skin Diver/Snorkel Performance Requirements are laid out and used the same as the Scuba Diver Performance Requirements. The certification designation [S] is the only difference. [S] addresses those Performance Requirements that require submersion, do not affect the Level of certification; A, B & C, but if not performed they are a candidate for Snorkeler.

CERTIFICATION DESIGNATIONS

[B]	Can NOT perform	B Level Certification
[C-SPR]	Can NOT perform	NO Certification
[C-SPR]	Performed with assistance	C Level Certification
[R]	Can NOT perform	NO Certification
[S]	Can NOT perform	Snorkel Certification

APPLICATION OF THE MULTILEVEL CERTIFICATION
The HSA Performance Requirements have obvious and subtle differences!! They should be studied and compared to the Performance Requirements used by your primary agency. The Multilevel Certification System is different and somewhat more complicated from normal certifications, but once you see how it works, it is really very easy.

You have trained three (3) students; each of them has completed five (5) open water scuba dives for their certification. What level is the diver to be certified at if they are unable to successfully challenge these standards? (Consider SPR standards to have been completed with assistance.)

Student 1: Level_____	I.C. 14, 18, 27 (unable to secure), 42 II.C. 10, 13
Student 2: Level_____	I.C. 36 (unable to look up), 41, 42 II.C. 30, 32
Student 3: Level ____	I.C. 13, 20, 27 (as the donor) II.C. 9, 18, 19, 21

CONFINED AND OPEN WATER LESSON PLANS (Beginning page 18)
The Lesson Plans for Confined Water are designed for two (2) hours in-water training sessions. The Lesson Plans for Open Water are designed for each of the five (5) open water dives. Each activity is correlated with one or more HSA Physical Performance Requirements listed by their number designation (such as I.C.14).

The ACTIVITIES, with their corresponding HSA Physical Performance Requirements, are in the recommended training sequence. However, if the Student is having difficulty, or the Instructor determines that it would benefit the student to change this sequence, it is permissible to do so.
CAUTION: The following Confined Water Performance Requirements must be completed prior to any Open Water Scuba dives. I.C. 5, 14, 15, 20, 21, 22, 23, 29, 31 and 36.

I. CONFINED WATER PERFORMANCE REQUIREMENTS

IA: CONFINED WATER SWIMMING SKILLS:

Equipment: none. This is a performance evaluation. Successful completion of these skills is not required for certification.

1) Swim 220 yards/200 meters, nonstop, any stroke, and no time limit.
2) Survival swim for ten (10) minutes; treading, bobbing, floating, or best method suited to the individual.
3) Swim underwater for 50 feet/15 meters or 30 seconds.

IB: CONFINED WATER SKIN DIVING /SNORKELING SKILLS:

Equipment: Dive Mask, Snorkel, Buoyancy Control Device (BCD), Fins (if appropriate), Weight System (if appropriate), Exposure Suit (if customary for local diving).

1) *With assistance if necessary*, don, adjust, use and remove all equipment used for open water skin diving. [R]

2) *With assistance if necessary*, check your own equipment and the equipment of another skin/snorkel diver for any maladjustments or malfunctions. [R]

3) *With assistance if necessary*, safely enter and exit the water, using the techniques best suited to the individual and local diving situations, including boat entries and exits. [R]

4) Adjust buoyancy to achieve neutral buoyancy at the surface with lungs deflated. [C-SPR]

5) Control the airways to prevent choking while breathing through a snorkel; with face submerged breathe through water in the snorkel. [R]

6) Orally inflate BCD at the surface. [C-SPR]

7) Rest motionless at the surface, for at least five (5) minutes, with the head above water supported only by the BCD. [C-SPR]

8) Deflate the BCD at the surface. [C-SPR]

9) Use the buddy system by remaining within reach of a buddy diver at the surface and constantly remaining near the approximate location of a submerged buddy diver. [B]

10) Surface dive head first and/or feet first to a depth of eight (8) feet/2.5 meters or more. [S]

11) Equalize pressure in the air spaces for a comfortable descent and ascent. [S]

12) Swim 50 feet/15 meters, or 30 seconds, with face under water on a single breath of air. [R]

13) Control direction while swimming at the surface, using mask and snorkel. [B]

14) Ascend to the surface while looking up and around. [S] [Skin Diver Only B]

15) Clear water from a snorkel at the surface and resume breathing without lifting the face from the water. [C-SPR]

16) Rest motionless at the surface for at least five (5) minutes while breathing through a snorkel without lifting the face from the water. [C-SPR]

17) Quickly remove the weight belt, clear of the body at the surface. [C-SPR]

18) Quickly remove the weight belt clear of the body underwater. [Skin Diver Only C-SPR]

19) *With assistance if necessary*, remove, replace and clear the dive mask of water at the surface. [R]

20) Assist a buddy diver by providing support, orally inflate buddy's buoyancy control device and transport with a tow, while keeping close visual contact. [B]

21) Remove a buddy diver's equipment, dive mask, snorkel and weight belt. [B]

22) Simulate resuscitation in the water on a buddy diver who is simulating unconsciousness. [B]

23) Pace activities to prevent breathlessness. [R]

24) Turnover at the surface while breathing from a snorkel from the prone position to the back to the prone. [C-SPR]

25) Correctly interpret and respond to standard diving signals at the surface and under water. [R]

IC: CONFINED WATER SCUBA DIVING SKILLS:

Equipment: Dive Mask, Snorkel, Buoyancy Control Device (BCD), Weight System, Fins (if appropriate), Exposure Suit & Gloves (if customary for local diving), and SCUBA.

1) *With assistance if necessary*, don, adjust, use and remove all equipment used for Open Water SCUBA diving. [R]

2) Check own equipment and the equipment of another scuba diver for any maladjustments or malfunctions. [B]

3) *With assistance if necessary*, safely enter and exit the water, using the techniques best suited to the individual and local diving situations, including boat entries and exits. [R]

4) Independently adjust buoyancy by selection of weights to achieve neutral buoyancy at the surface with the lungs inflated, and with 500 psi/50 BAR tank pressure. [R]

5) *With assistance if necessary*, remove, defog, replace and clear the dive mask of water while at the surface. [R]

6) Swim comfortably at the surface while breathing through a snorkel and/or regulator. [C-SPR]

7) Inflate a BCD, both orally and with a low pressure inflator, at the surface and underwater. [C-SPR]

8) Rest motionless at the surface with the head above water supported only by the BCD. [R]

9) Turnover at the surface while breathing through a snorkel and/or regulator from the prone to the back to the prone. [C-SPR]

10) Deflate a BCD completely, at the surface and under water. [C-SPR]

11) Use the buddy system by remaining within reach of a buddy SCUBA diver while at the surface and under water. [B]

12) Alternate breathing between the snorkel and regulator, or recover and clear regulator, at the surface without lifting face from the water. [C-SPR]

13) Control the airways by not choking while breathing through a snorkel and/or regulator. [R]

14) Using buoyancy control, descend from the surface using a feet first descent, while neutrally weighted. [C-SPR]

15) Equalize pressure in the air spaces for comfortable descents and ascents. [C-SPR]

16) Control descents and be able to STOP and HOVER in mid-water at any time. [C-SPR]

17) Attain and maintain neutral buoyancy at any depth. [C-SPR]

18) Swim proficiently at the surface and under water using techniques best suited for the individual. [C- SPR]

19) Independently control direction while swimming at the surface and underwater. [B]

20) Clear the regulator second stage of water while at the surface and under water. [R]

21) Recover the regulator second stage from behind the shoulder while at the surface and under water. [C- SPR]

22) Breathe comfortably from a free-flowing regulator second stage while underwater for at least one (1) minute. [R]

23) Completely remove, replace and clear the dive mask of water while under water. [C-SPR]

24) Completely remove the dive mask under water and ascend to the surface while breathing on SCUBA. Attain positive buoyancy, replace and clear dive mask of water. [C-SPR]

25) Swim underwater without a dive mask on and without blocking the nostrils for at least 150 feet/45meters while breathing on SCUBA. [C-SPR]

26) Buddy breathe under water using one (1) regulator second stage, with another SCUBA diver, in both the stationary and swimming positions for a period of at least two (2) minutes as the donor and two (2) minutes as the receiver of air. [B: only 'as donor of air' may be omitted] [Optional Skill]

27) ALTERNATE AIR SOURCE USE:
OCTOPUS BACK-UP REGULATOR: Breathe underwater using an alternate air source octopus regulator with another SCUBA diver, in both the stationary and swimming positions, for a period of at least two (2) minutes as the donor and two (2) minutes as the receiver of air. The receiver must secure and breathe from their buddy's alternate air source octopus regulator. [B]: only “as donor of air” may be omitted] [C-SPR: unable to secure alternate air source]

28) ALTERNATE AIR SOURCE USE: INTEGRATED POWER INFLATOR SECOND STAGE REGULATOR: Breathe underwater using an Alternate Air Source Power Inflator Regulator with another diver in the stationary position, for a period of at least two (2) minutes as the donor and two (2) minutes as the receiver of air. The receiver of air must secure and breathe from the donor's primary second stage regulator; the donor of air must secure and breather from their own Alternate Air Source Power Inflator Regulator. [B: only "as the donor of air" may be omitted]

29) CONTROLLED EMERGENCY SWIMMING ASCENT:
Simulate an out-of-air emergency and perform a controlled emergency swimming ascent (CESA) at a rate of 30 feet/9m per minute, with all SCUBA equipment in place, the air on, regulator second stage in the mouth, while exhaling continuously to the surface and then orally inflate the BCD. This skill is to be performed in at least eight (8) feet/2.5m of water. [C-SPR]

30) EMERGENCY SWIMMING ASCENT HORIZONTAL:
Simulate an out-of-air situation and perform a simulated controlled emergency swimming ascent, by swimming 15 feet/5meters horizontally underwater, while exhaling continuously, with all SCUBA equipment in place, air on, regulator second stage in the mouth. [C-SPR]

31) ASCENDING: ALTERNATE AIR SOURCE USE:
OCTOPUS BACK-UP REGULATOR: Simulate an out-of-air situation and perform a controlled emergency swimming ascent, 30 feet/9meters per minute, with all SCUBA equipment in place while breathing normally from another SCUBA divers alternate air source octopus regulator, and then orally inflate the BCD at the surface. This skill is to be performed as both the donor and receiver of air, in at least eight (8) feet/2.5meters of water. [B: only as "donor of air" may be omitted] [C-SPR: unable to orally inflate BCD at surface]

32) ASCENDING:
EMERGENCY BUDDY-BREATHING ASCENT: Simulate an out-of-air situation and perform a controlled Emergency Buddy Breathing Ascent, 30 feet/9meters per minute, with all SCUBA equipment in place, while Buddy Breathing from a single regulator second stage with another SCUBA diver and then orally inflate the BCD at the surface. This skill is to be performed as both the donor and receiver of air, in at least eight (8) feet/2.5 meters of water. [B: only "as the donor of air" may be omitted.] [C-SPR: unable to orally inflate BCD at the surface] [Optional Skill]

33) *With assistance if necessary*, use a submersible pressure gauge, to prevent depletion of the air supply, below 500 psi/50 Bar, while using SCUBA under water. [R]

34) Remember to check the deepest depth of every dive. [R]

35) Remember to check the time or simulate checking the time, before every descent and ascent. [R]

36) Safely ascend to the surface breathing normally on SCUBA at a steady rate of 30 feet/9meters per minute, while looking up and around. [B: only looking up and around may be omitted] [C-SPR: assisted ascent]

37) Maintain near-neutral buoyancy during ascent, and be able to stop and hover in mid-water at any time. [C-SPR]

38) *With assistance if necessary*, replace and secure a weight system at the surface and under water. [R]

39) Quickly remove a weight system free of the body, and all equipment, at the surface while negatively weighted. [C-SPR)

40) EMERGENCY BUOYANT ASCENT: Quickly remove a weight system free of the body and all equipment while neutrally buoyant underwater, and perform an emergency positively buoyant ascent. All SCUBA equipment is to be in place, regulator second stage in the mouth, "spread eagle" the arms and legs, arch the head back, and exhale continuously to the surface while controlling buoyancy by releasing expanding air from the BCD. Orally inflate the BCD at the surface. The instructor must maintain constant physical contact at all times, but without impeding the student's performance. To be performed in at least eight (8) feet/2.5meters of water. [C-SPR]

41) Tow at the surface another fully equipped SCUBA diver a distance of at least 150 feet/45 meters. [B]

42) Rescue a simulated unconscious SCUBA diver, from a depth of at least eight (8) feet/2.5 meters. Remove the weight system and bring them safely to the surface, then remove dive mask and correctly apply ventilation while towing a distance of at least 50 feet/15 meters. [B]

43) Pace activity to prevent breathlessness at the surface and underwater. [R]

44) Correctly interpret and respond to standard diving signals at the surface and under water. [R]

45) MID-WATER BUDDY BREATHING: ***ADVANCED SCUBA COURSE ONLY*** Establish and maintain firm contact mid-water. Initiate Mid-Water Buddy Breathing, using one regulator second stage while neutrally buoyant in mid-water. Buddy Breathe a minimum of six times stationary in mid-water, then ascend to the surface. At the surface the receiver orally inflates their buoyancy control device (BCD), while the donor power inflates their BCD and provides support for the receiver. Maintain contact, and continue buddy breathing until both buddies are positively buoyant at the surface. This skill is to be performed as both donor and receiver of air, in at least 8 feet/2.5meters of water.[B: only "as the donor of air" may be omitted.][C-SPR: unable to orally inflate BCD at the surface]

II. OPEN WATER PERFORMANCE REQUIREMENTS

IIB: Open Water Skin Diving/Snorkeling Skills

Equipment: Dive Mask, Snorkel, Buoyancy Control Device (BCD), Weight System (if appropriate), Fins (if appropriate), Exposure Suit and Gloves (if customary for local diving).

1) *With assistance if necessary*, don, adjust, use and remove all equipment used for open water skin diving. [R]

2) *With assistance if necessary*, check your own equipment and the equipment of another skin diver for any maladjustments or malfunctions. [R]

3) *With assistance if necessary*, safely enter and exit the water, using the techniques best suited to the individual and local diving situations, such as calm water, surf, mud and boat diving. [R]

4) Adjust buoyancy to achieve neutral buoyancy at the surface with lungs deflated. [C-SPR]

5) Orally inflate BCD at the surface. [C-SPR]

6) Rest motionless at the surface for at least five (5) minutes, with the head above water supported only by the BCD. [C-SPRI

7) Turnover at the surface while breathing through a snorkel, from the prone to the back to the prone. [C-SPR]

8) *With assistance if necessary*, deflate the BCD at the surface. [R]

9) Use the buddy system by remaining within reach of a buddy diver at the surface and constantly remaining near the approximate location of a submerged buddy diver. [B]

10) Surface dive head first and/or feet first to a depth of at least ten (10) feet/3meters. [S]

11) Equalize pressure in the air spaces for a comfortable descent and ascent. [S]

12) Control direction while swimming on the surface and/or under water. [B]

13) Clear water from a snorkel at the surface and resume breathing without lifting the face from the water. [C-SPR]

14) Rest motionless at the surface for at least five (5) minutes while breathing through a snorkel without lifting the face from the water. [R]

15) *With assistance if necessary*, remove, defog, replace and clear the dive mask of water at the surface. [R]

16) Assist a buddy diver by providing support, orally inflate buddy diver's buoyancy control device and transport with a tow while keeping close visual contact. [B]

17) Remove a buddy diver's equipment; dive mask, snorkel and weight belt. [B]

18) Simulate resuscitation in the water on a buddy diver who is simulating unconsciousness. [B]

19) Pace activities to prevent breathlessness. [R]

20) Correctly interpret and respond to standard diving signals at the surface and under water. [R]

21) During each qualifying Skin/Snorkel Dive, find, describe, and identify one from of marine life. Describe the marine life by size, shape, color and pattern. Give a brief account of where it lives, i.e. on the bottom, in seaweed, under a rock, in a hole or in open water (pelagic). [R]

IIC: OPEN WATER SCUBA DIVING SKILLS

Equipment: Dive Mask, Snorkel, Buoyancy Control Device (BCD), Weight System, Fins (if appropriate), Exposure Suit and Gloves (if customary for local diving), and SCUBA.

1) *With assistance if necessary*, don, adjust, use and remove all equipment used for open water SCUBA diving. [R]

2) Check own equipment and the equipment of another scuba diver for any maladjustments or malfunctions. [B]

3) *With assistance if necessary*, safely enter and exit the water, using the techniques best suited to the individual and local diving situations, such as calm water, surf, mud and boat diving.[R]

4) *With assistance if necessary*, remove, defog, replace and clear the dive mask of water while at the surface. [R]

5) Independently adjust buoyancy by selection of weights to achieve neutral buoyancy at the surface with the lungs inflated, and with 500 psi/50 BAR tank pressure. [R]

6) Inflate a buoyancy control device, both orally and with a low pressure inflator, at the surface and underwater. [C-SPR]

7) Rest motionless at the surface with the head above the water, supported only by the BCD. [R]

8) Turnover at the surface, while breathing through a snorkel and/or regulator, from the prone to the back to the prone. [C-SPR]

9) Deflate a BCD completely at the surface and underwater. [C-SPR]

10) Use the buddy system by remaining within reach of a buddy SCUBA diver while at the surface and underwater. [B]

11) Alternate breathing between snorkel and regulator, or recover and clear regulator, at the surface without lifting face from the water. [C-SPR].

12) Using buoyancy control, descend comfortably to a depth of 20 feet/6meters to 30 feet/9meters using a feet-first descent, while neutrally weighted and without a line. [C-SPR]

13) Equalize pressure in the air spaces for comfortable descents and ascents. [C-SPR]

14) Control descents and be able to stop and hover in mid-water, at any time. [C-SPR]

15) Attain and maintain neutral buoyancy at any depth. [C-SPR]

16) Clear the regulator second stage of water while at the surface and underwater. [R]

17) Recover the regulator second stage from behind the shoulder while at the surface and underwater. [C- SPR]

18) Breathing comfortably from a free-flowing regulator second stage while at a depth of 20 feet/6meters to 30 feet/9meters for a period of at least one (1) minute. [R]

19) Completely remove, replace, and clear the dive mask of water, while underwater.[C-SPR]

20) Completely remove the dive mask underwater and ascend to the surface while breathing on SCUBA Attain positive buoyancy, replace and clear dive mask of water. Perform this skill in 20 ft/6meters to 30 ft/9meters of water. [C-SPR]

21) Buddy Breathe Underwater using one regulator second stage with the Scuba Instructor for a period of one minute as donor of air, and one minute as receiver of air, while at a depth of 20feet/6meters. [B: only"as donor of air" may be omitted] [Optional Skill]

22) ALTERNATE AIR SOURCE USE: Octopus back-up regulator:
Breathe underwater using an alternate air source octopus back-up regulator with another SCUBA diver, in the stationary position, for a period of at least one (1) minute as the donor and one (1) minute as the receiver of air, while at a depth of 20 ft/6meters to 30 feet/9meters. Receiver must secure and breathe from their buddy's alternate air source octopus regulator. [C-SPR: unable to secure alternate air source]

23) CONTROLLED EMERGENCY SWIMMING ASCENT:
Simulate an out-of-air situation and perform a controlled emergency swimming ascent (CESA) at a rate of 30 feet/9 meters per minute, with all SCUBA equipment in place, air on, regulator second stage in the mouth, while exhaling continuously to the surface, and then orally inflate the BCD. Perform this skill in 20 feet/6 meters to 30 feet/9 meters of water. [C-SPR]

24) ASCENDING ALTERNATE AIR SOURCE USE: Octopus back-up regulator:
Simulate an out-of-air emergency and perform a controlled emergency swimming ascent (CESA), 30 feet/9meters per minute, from a depth of 20 feet/6meters to 30 feet/9meters, with all SCUBA equipment in place, air on, while breathing normally from another SCUBA divers alternate air source octopus regulator. Then, the receiver orally inflates the BCD at the surface. Perform this skill both as the donor and receiver of air. [C-SPR unable to orally inflate BCD]

25) *With assistance if necessary*, use a submersible pressure gauge to prevent depletion of the air supply below 500 psi/50 BAR, while using SCUBA underwater. [R]

26) Remember to check the deepest depth of every dive. [R]

27) Remember to check the time or simulate checking the time before every descent and ascent. [R]

28) Safely ascend to the surface breathing normally on SCUBA at a steady rate of 30 feet/9meters per minute, while looking up and around from any depth. Perform this skill from a depth of 20 feet/6meters to 30 feet/9 meters. [B: "looking up and around" may be omitted.] [C-SPR: assisted ascent]

29) Maintain neutral buoyancy during ascent, and be able to stop and hover in mid-water at any time. [C-SPR]

30) Independently swim in and through weeds, or kelp, or other obstructions representative of local diving conditions, while using a compass and natural navigation to locate the end of dive exit point. [B]

31) At the surface, orally inflate the buoyancy control device of another fully equipped SCUBA diver and tow them a distance of at least 150 feet/45meters. [B]

32) At the surface, remove the dive mask of another fully equipped SCUBA diver, who is simulating unconsciousness, and administer ventilation while towing a distance of at least 50 feet/15meters. [B]

33) Pace activity to prevent breathlessness at the surface and underwater. [R]

34) Swim on the surface a distance of 100 yards/90meters. [C-SPR]

35) During each qualifying SCUBA Dive, find, describe and identify one form of marine life. Describe the marine life by size, shape, color, and pattern. Give a brief account of where it lives, i.e. on the bottom, in seaweed, under a rock, in a hole or in the open water (pelagic) [R]

36) MID-WATER BUDDY BREATHING: ***ADVANCED SCUBA COURSE ONLY***
Establish and maintain firm contact mid-water. Initiate Mid-Water Buddy Breathing, using one regulator second stage while neutrally buoyant in mid-water. Buddy Breathe a minimum of six times stationary in mid-water, then ascend to the surface. At the surface the receiver orally inflates their buoyancy control device (BCD), while the donor power inflates their BCD and provides support for the receiver. Maintain contact, and continue buddy breathing until both buddies are positively buoyant at the surface. This skill is to be performed as both donor and receiver of air, in at least 15 feet/5 meters of water. [B: only "as the donor of air" may be omitted.] [C-SPR: unable to orally inflate BCD at the surface]

HSA CONFINED WATER LESSON PLANS – SWIM EVALUATION

Participants Name _____ Date of Course _____

THIS is a NO-EQUIPMENT Swimming Skills EVALUATION, and introduction to Mask, Snorkel and Buoyancy Control Device (BCD). This Evaluation in most cases will be COMBINED with Scuba Diving Lesson 1. These are NOT Performance Requirements, and do NOT need to be completed for certification.

1. Swimming evaluation
2. Introduction to Mask, Snorkel, and BCD

1. SWIMMING SKILLS EVALUATION

   All students should attempt to accomplish the three swimming skills. This will give the instructor and the student the opportunity to evaluate their comfort level in the water.

   a. Swim 220 yards/200 meters without stopping, using any stroke, no time limit.
      I.A.1. Date completed,_____Incomplete [ ]

   b. Survival swim for 10 minutes by treading, bobbing, floating or method best suited to the individual.
      I.A.2. Date completed,_____Incomplete [ ]

   c. Swim 50 feet/15 meters, or 30 seconds, underwater on a single breathe of air.
      I.A.3. Date completed,_____Incomplete [ ]

2. INTRODUCTION TO MASK, SNORKEL and BUOYANCY CONTROL DEVICE (BCD)

   a. Assemble mask and snorkel. Defog mask, don it and the BCD.
      INTRODUCTION Date completed,_____Incomplete [ ]

   b. Introduce Entries and Exits from the water.
      INTRODUCTION Date completed,_____Incomplete [ ]

   c. Explanation and demonstration of Snorkel Clearing using two methods, breathe and displacement. Practice both methods in shallow water.
      INTRODUCTION Date completed,_____Incomplete [ ]

   d. Orally inflate BCD at the surface.
      INTRODUCTION Date completed,_____Incomplete [ ]

   e. Swim at the surface using mask and snorkel.
      INTRODUCTION Date completed,_____Incomplete [ ]

   f. Turnover at the surface from the prone to the back to the prone. Get their legs down and under them to attain and maintain an upright position.
      INTRODUCTION Date completed,_____Incomplete [ ]

HSA CONFINED WATER LESSON PLANS – SCUBA DIVING LESSON 1

Participants Name _____ Date of Course _____

NOTE: Check W/A [ ] for SPR Performance Requirements completed With Assistance.

1. ASSEMBLE, DON and USE SCUBA, ENTER THE WATER.

   a. Assemble and don SCUBA, with assistance if necessary.
   I.C.1 [R] Date completed _____ Incomplete [ ]
   b. Check own equipment and the equipment of their buddy.
   I.C.2 [B] Date completed _____ Incomplete [ ]
   c. Enter and Exit the water, with assistance if necessary.
   I.C.3 [R] Date completed _____ Incomplete [ ]

2. Adjust Neutral Buoyancy at the surface, with 500 psi/50 bar tank pressure and lungs inflated.
   Select weights for confined (fresh) water _____ pounds/kilos
   I.C.4 [R] Date completed _____ Incomplete [ ]

3. Rest at the Surface for 5 minutes supported only by the BCD.
   I.C.8 [R] Date completed _____ Incomplete [ ]

4. Remove, Defog, Replace and Clear the Dive Mask of water at the surface, with assistance if necessary.
   I.C.5 [R] Date completed _____ Incomplete [ ]

5. Breathe without mask. Remove mask, breathe from regulator in through the mouth out through the nose while gradually lowering face into the water until head is completely submerged. Continue to breathe in through the mouth and out through the nose for one minute.
   Skill development Date completed _____ Incomplete [ ]

6. Inflate BCD with low pressure inflator both at the surface and underwater.
   I.C.7 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

7. Completely deflate the BCD both at the surface and underwater.
   I.C.10 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

8. Using Buoyancy Control, Descend feet first in deep water.
   I.C.14 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

9. Equalize Pressure in all air spaces during both descents and ascents.
   I.C.15 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

10. Attain Neutral Buoyancy and Swim underwater while maintaining the Buddy system and Independently Control direction.
    I.C.17 [C-SPR] (Buoyancy) Date completed _____ W/A [ ] Incomplete [ ]
    I.C.18 [C-SPR] (Swimming) Date completed _____ W/A [ ] Incomplete [ ]
    I.C.11 [B] (Buddy) Date completed _____ Incomplete [ ]
    I.C.19 [B] (Direction) Date completed _____ Incomplete [ ]

11. At the Surface and Underwater, Remove, Replace and Clear the Regulator Second Stage of water.
    I.C.13 [R] (Control airways) Date completed _____ Incomplete [ ]
    I.C.20 [R] (Clear Regulator) Date completed _____ Incomplete [ ]

12. At the Surface and Underwater, perform a Regulator Recovery from behind the right shoulder.
    I.C.21 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

13. Orally Inflate the Buoyancy Control Device at the surface and underwater.
    I.C.7 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

14. Ascend to the surface at a rate of 30 feet/9 meters per minute, while looking up and around.
    I.C.36 [B] (look up) [C-SPR] (ascent) Date completed _____ W/A [ ] Incomplete [ ]

HSA CONFINED WATER LESSON PLANS –Scuba Diving Lesson 2

Participants Name _____ Date of Course _____

1. Surface Swim & turn over, alternate snorkel/regulator
2. Control descents, monitor air, depth, time
3. Free flowing regulator, weight belt removal
4. Buddy breathe, emergency swimming ascent
5. Mask removal underwater, controlled ascent

1. ASSEMBLE and DON SCUBA, ENTER THE WATER, SURFACE SWIM breathing from a snorkel and/or regulator, and TURN OVER from the back to the prone to the back using a snorkel and/or regulator.
   I.C.6 [C-SPR] (surface swim) Date completed _____ W/A [ ] Incomplete [ ]
   I.C. 9[C-SPR] (turn over) Date completed _____ W/A [ ] Incomplete [ ]

2. At the surface, Alternate breathing between the Snorkel and Regulator, or recover and clear regulator, in the Prone position and without lifting face from the water.
   I.C.12 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

3. Make a Buoyancy Controlled Descent, stop mid-water and hover for at least one (1) minute, continue descent to the bottom then transition to swimming without touching bottom.
   I.C.16 [C-SPR] (control descent) Date completed _____ W/A [ ] Incomplete [ ]

4. Monitor gauges throughout entire diving lesson, Air Pressure, Depth and Bottom Time.
   I.C.33 [R] (Check air) Date completed _____ Incomplete [ ]
   I.C.34 [R] (Check depth) Date completed _____ Incomplete [ ]
   I.C.35 [R] (Check time) Date completed _____ Incomplete [ ]

5. BREATHE for a minimum of 1 minute through a FREE FLOWING REGULATOR without choking.
   I.C.22 [R] Date completed _____ Incomplete [ ]

6. REMOVE and REPLACE the WEIGHT SYSTEM while under water, with assistance if necessary.
   I.C.38 [R] Date completed _____ Incomplete [ ]

7. BUDDY BREATHE from a SINGLE SECOND STAGE while stationary and swimming for a period of at least 2 minutes as the RECEIVER of air and 2 minutes as the DONOR of air.
   I.C.26 [B: donor omitted] [Optional Skill] Date completed _____ Incomplete [ ]

8. Perform a CONTROLLED EMERGENCY SWIMMING ASCENT with the head tipped back, while exhaling to the surface with all SCUBA in place. ORALLY INFLATE the BUOYANCY CONTROL DEVICE at the surface.
   I.C.29 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

9. AT THE SURFACE and UNDERWATER, FLOOD and CLEAR the dive mask of water. Breathe on scuba with dive mask flooded.
   Skill Development Date completed, _____ Incomplete [ ]

10. While underwater, completely remove the Dive Mask then breathe on SCUBA for at least two (2) minutes. Replace and clear the dive mask of water. Perform in shallow then deep water.
    I.C.23 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

11. Perform BUOYANCY CONTROLLED ASCENT at 30 feet/9 meters per minute, and STOP and HOVER in mid-water for at least 30 seconds.
    I.C.37 [C-SPR] Date completed _____ W/A [ ] Incomplete [ ]

NOTE: #7. Buddy Breathing skills can be satisfied by the Donor holding their primary second stage and octopus second stage in their right hand and during buddy breathing the Donor breathes from their primary second stage and the Receiver breathes from the Donor's octopus. This skill is optional]

HSA CONFINED WATER LESSON PLAN – Scuba Diving Lesson 3

Participants Name _____ Date of Course _____

1. Buddy breathe stationary, swimming and ascending
2. Alternate Air Source Octopus, stationary, swimming, and ascending
3. Alternate Air Source integrated, stationary
4. Emergency swimming ascents, neutral and negative with emergency weight belt removal at the surface

1. ASSEMBLE and DON SCUBA, enter the water, surface swim, descend feet first in deep water, stop mid-water and check ears, then swim away without touching the bottom.
   Skill Development Date completed,_____Incomplete [ ]

2. FLOOD and CLEAR the dive mask of water, completely remove the dive mask, and breathe from SCUBA for a minimum of one (1) minute, then replace dive mask and clear of water.
   Skill Development Date completed_____Incomplete [ ]

3. BUDDY BREATHE with one regulator second stage stationary and swimming for a minimum of two (2) minutes, then ascend to the surface while continuing to buddy breathe. At the surface the receiver orally inflates their BCD, the donor auto-inflates their BCD and provides support to the receiver. Perform both as the donor and receiver of air. [Optional Skill]
   I.C.32 [B: donor omitted] [C: inflate omitted] Date completed_____Incomplete [ ]
   Date completed_____ W/A [ ] Incomplete [ ]

4. SHARE AIR: STATIONARY, using the octopus alternate air source for a minimum of two (2) minutes as the DONOR of air, and two (2) minutes as the receiver of air. Receiver secures the octopus regulator.
   I.C.27 [C-SPR] (secure octopus) Date completed_____ W/A [ ] Incomplete [ ]

5. SHARE AIR: ASCENDING, using the octopus alternate air source while swimming for a minimum of two (2) minutes, then ascend to the surface while continuing to share air. At the surface the receiver orally inflates their BCD, the donor auto-inflates their BCD and provides support to the receiver. Perform both as the donor and receiver of air. Receiver secures the octopus regulator.
   I.C.31 [C-SPR] (Inflate omitted) Date completed_____ W/A [ ] Incomplete [ ]

6. Perform a CONTROLLED EMERGENCY SWIMMING ASCENT in two (2) ways. First, begin the CESA while negatively buoyant and orally inflate the BCD at the surface. Second, begin the CESA while neutrally buoyant and orally inflate the BCD at the surface.
   Skill Development Date completed,_____Incomplete [ ]

7. Perform a CONTROLLED EMERGENCY SWIMMING ASCENT. Begin while negatively buoyant, swim to the surface, and then quickly remove the weight system clear of the body at the surface.
   I.C.39 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

8. SHARE AIR, stationary using an Integrated Power Inflator Regulator while stationary for a minimum of two (2) minutes as the donor of air and two (2) minutes as the receiver of air. Receiver must secure and breathe from the donor's primary second stage regulator. Donor must secure and breathe from their own Integrated Power Inflator Regulator.
   I.C.28 [B] (donor omitted) Date completed,_____Incomplete [ ]

NOTE: #8. If students are not using BCD's with Integrated Power Inflator Back-up Regulators, such as a Scubapro AIR II, use the following simulation. The Donor passes their primary regulator second stage to the Receiver and then recovers and breathes from their own octopus regulator second stage.

HSA CONFINED WATER LESSON PLAN – Scuba Diving Lesson 4

Participants Name _____ Date of Course _____

1. Tired Buddy Tow
2. 30 foot/9 meter Horizontal Controlled Emergency Swimming Ascent
3. Swim underwater without a Dive Mask
4. Ascent without a Face Mask
5. Rescue diver from pool bottom
6. Emergency Buoyant Ascent

1. Assemble and don SCUBA, enter the water, surface swim, turn over at the surface, and perform TIRED BUDDY TOWS of at least 150 feet/45m.
   I.C.41 [B] (tired buddy) Date completed,_____Incomplete [ ]

2. Descend in deep water, stop partway down and HOVER for a minimum of two (2) minutes, continue down and swim away without touching the bottom.
   Skill Development Date completed,_____Incomplete [ ]

3. Perform a 15 foot/5meter underwater horizontal EMERGENCY SWIMMING ASCENT.
   I.C.30 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

4. Flood and Clear the dive mask of water, then completely remove, replace, and clear the dive mask of water.
   Skill Development Date completed,_____Incomplete [ ]

5. Completely remove the dive mask, place it on the pool bottom and swim a circuit of at least 150 feet/45m away from, then back to the dive mask. RECOVER, DON, and CLEAR the face mask of water.
   I.C.25 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

6. Completely remove the dive mask; BREATHE on SCUBA for a minimum of one (1) minute, then ASCEND to the surface while breathing on SCUBA, attain positive buoyancy, then DEFOG, REPLACE, and CLEAR the face mask.
   I.C.24 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

7. At the surface, tow and ventilate an unconscious diver. REMOVE the victim's mask and snorkel, then apply VENTILATIONS and TOW the victim a minimum of 20 feet/6 meters
   Skill Development Date completed,_____Incomplete [ ]

8. RESCUE an unconscious diver from the pool bottom. DEFLATE BCD's of both the Rescuer and Victim, then REMOVE the victim's weight system and bring the victim to the surface. REMOVE the victim's mask and snorkel, then apply VENTILATIONS and TOW the victim a minimum of 50 feet/15 meters.
   I.C.42 [B] Date completed,_____Incomplete [ ]

9. Perform an EMERGENCY BUOYANT ASCENT. DEFLATE BCD, then remove weight system clear of the body and all equipment, ascend face-up with arms spread, exhale continuously and control ascent by releasing air from BCD. Orally inflate at the surface. CAUTION: The Instructor must maintain physical contact with student at all times.
   I.C.40 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

10. PACE ACTIVITIES so as not to become stressed and/or out of breathe.
    I.C.43 [R] Date completed,_____Incomplete [ ]

11. Use and understand DIVER SIGNALS for communication at the surface and underwater.
    I.C.44 [R] Date completed,_____Incomplete [ ]

HSA OPEN WATER LESSON PLANS – Scuba Dive Lesson 1

Participants Name _____ Date _____ Location _____

1. Don, adjust & buddy check SCUBA
2. Enter/exit the water and Adjust buoyancy
3. Defog and clear dive mask at the surface
4. Inflate buoyancy control device (BCD) at the surface, orally and with inflator
5. Rest, turn over and swim at the surface
6. Deflate BCD and descend using a line
7. Equalize pressure
8. Marine life identification

1. Don, Adjust and Buddy check SCUBA equipment, with assistance if necessary.
   II.C.1 [R](Don) Date completed_____Incomplete [ ]
   II.C.2 [B](Check) Date completed_____Incomplete [ ]

2. Enter the water, Buddy Check SCUBA equipment and buoyancy, with assistance if necessary.
   II.C.3 [R](Enter/exit) Date completed_____Incomplete [ ]

3. Remove, Defog, Replace and Clear the dive mask of water, with assistance if necessary.
   II.C.4 [R] Date completed_____Incomplete [ ]

4. Inflate Buoyancy Control Device (BCD) at the surface both Orally and with the Low Pressure Inflator.
   II.C.6 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

5. Rest motionless at the surface for five (5) minutes, the turn over from the back to the prone and swim on the surface.
   II.C.7 [R] (Rest) Date completed_____Incomplete [ ]
   II.C.8 [C-SPR] (Turn over) Date completed_____ W/A [ ] Incomplete [ ]

6. Deflate Buoyancy Control Device (BCD) at the surface and Descend using a descent line.
   II.C.9 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

7. Equalize Pressure in air spaces.
   II.C.13 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

8. Attain NEUTRAL BUOYANCY, Swim and Explore the underwater environment for a minimum of twenty (20) minutes.
   Skill Development Date completed_____Incomplete [ ]

9. **MARINE LIFE IDENTIFICATION**. Find, describe and identify one form of Marine Life. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
   II.C.35 [R] Date completed_____Incomplete [ ]

10. Partially Flood and Clear the dive mask of water, then Ascend to the surface using the ascent line.
    Skill Development Date completed _____Incomplete [ ]

11. Buoyancy Check for Neutral buoyancy at the surface with lungs inflated and 500 psi/50 BAR tank pressure. Record Open Water Weight needed _____ pounds/kilos
    II.C.5 [R] Date completed_____Incomplete [ ]

12. Swim to the Exit point, remove SCUBA equipment and exit the water, with assistance if necessary.
    II.C.3 [R] Date completed_____Incomplete [ ]

HSA OPEN WATER LESSON PLANS – Scuba Dive Lesson 2

Participants Name _____ Date _____ Location _____

1. Buddy System
2. Alternate breathing between regulator and snorkel
3. Clear regulator at the surface and underwater
4. Recover Regulator at the surface and underwater
5. Use submersible gauges to monitor air supply, depth and bottom time
6. Ascend to the surface without an ascent line
7. Marine life identification

1. Don, Adjust and Buddy Check SCUBA equipment, with assistance if necessary.
   Skill Development Date completed,_____Incomplete [ ]

2. Enter the water, Buddy Check SCUBA equipment. Remove, defog and clear dive mask of water, with assistance if necessary.
   Skill Development Date completed,_____Incomplete [ ]

3. Check buoyancy, turn over at the surface and swim in prone position. Inflate Buoyancy Control Device (BCD) at the surface both orally and with the low pressure inflator.
   Skill Development Date completed,_____Incomplete [ ]

4. Recover regulator second stage from behind the shoulder and clear of water while at the surface.
   II.C.16 [R] (Clear Regulator) Date completed,_____Incomplete [ ]
   II.C.17 [C-SPR] (Recover Regulator) Date completed_____ W/A [ ] Incomplete [ ]

5. At the surface, Alternate breathing between the snorkel and regulator, or recover and clear regulator, in the prone position and without lifting face from the water.
   II.C.11 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

6. Use the Buddy System at the surface and underwater by remaining within reach of the Buddy SCUBA Diver. Hearing impaired must also maintain Visual contact at the surface.
   II.C.10 [B] Date completed_____ Incomplete [ ]

7. Deflate the Buoyancy Control Device (BCD) at the surface and Descend using a descent line. Equalize.
   Skill Development Date completed_____Incomplete [ ]

8. Use the Low Pressure Inflator to adjust buoyancy underwater.
   Skill Development Date completed_____Incomplete [ ]

9. Monitor instruments throughout dive. Read and Give Air Pressure, check deepest Depth and Bottom Time.
   II.C.25 [R] (With assistance if necessary) Date completed_____Incomplete [ ]
   II.C.26 [R] (Deepest depth _____ ft/m) Date completed_____Incomplete [ ]
   II.C.27 [R] (Bottom time _____ minutes) Date completed_____Incomplete [ ]

10. Remove, Replace and Clear Regulator Second Stage of water, while underwater.
    II.16 [R] Date completed_____Incomplete [ ]

11. Recover Regulator Second Stage from behind shoulder while underwater.
    II.C.17 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

12. Swim and Explore the underwater environment for a period of at least twenty (20) minutes.
    Skill Development Date completed,_____Incomplete [ ]

13. **MARINE LIFE IDENTIFICATION**. Find, describe and identify one form of Marine Life. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
    II.C.35 [R] Date completed_____Incomplete [ ]

14. Ascend to the surface without an ascent line, breathing normally on SCUBA, at a steady of 30 feet/9 meters per minute while Looking Up and Around.
    II.C.28 [B](Looking up) Date completed_____Incomplete [ ]
    [C-SPR](Assisted ascent) Date completed_____ W/A [ ] Incomplete [ ]
    Swim to the Exit point, remove SCUBA equipment and exit the water.

HSA OPEN WATER LESSON PLANS – Scuba Dive Lesson 3

Participants Name _____ Date _____ Location _____

1. Neutral Buoyancy Underwater
2. Breathe from a free-flowing regulator
3. Buddy breathe stationary
4. Octopus, Alternate air source use stationary
5. Buoyancy-controlled ascent
6. Marine life identification

1. Don, adjust and buddy check SCUBA equipment, with assistance if necessary.
   Skill Development Date completed_____ Incomplete [ ]

2. Enter the water, Buddy check SCUBA equipment, then remove, defog and clear the dive mask of water, with assistance if necessary.
   Skill Development Date completed_____ Incomplete [ ]

3. Check buoyancy, turn over at the surface and swim in prone position to dive site. Inflate the buoyancy control device (BCD) at the surface Orally, and with the Low Pressure Inflator.
   Skill Development Date completed_____ Incomplete [ ]

4. At the surface, recover the regulator second stage from behind the shoulder, and alternate breathing between the snorkel and regulator.
   Skill Development Date completed_____ Incomplete [ ]

5. Use the Buddy System, deflate buoyancy control device (BCD) and descend together using a descent line while maintaining neutral buoyancy throughout the descent.
   II.C.15 [C-SPR] (Buoyancy) Date completed_____ W/A [ ] Incomplete [ ]

6. Maintain neutral buoyancy and swim underwater at various depths for a period of twenty (20) minutes.
   II.C.15 [C-SPR] (Buoyancy) Date completed_____ W/A [ ] Incomplete [ ]

7. **MARINE LIFE IDENTIFICATION**. Find, describe and identify one form of Marine Life. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
   II.C.35 [R] Date completed,_____ Incomplete [ ]

8. Monitor and communicate air pressure, depth and bottom time to buddy diver.
   Skill Development Date completed_____ Incomplete [ ]

9. Breathe comfortably from a Free-Flowing Regulator second stage for a period of at least one (1) minute.
   II.C.18 [R] Date completed_____ Incomplete [ ]

10. Buddy Breathe from a single Regulator second stage in the stationary position for at least one (1) minute as the Donor of air and one (1) minute as the Receiver of air. [B: donor omitted] [Optional Skill]
    II.C.21 Date completed_____ Incomplete [ ]

11. Breathe from an Alternate Air Source Octopus regulator in the stationary position for a period of at least one (1) minute as the Receiver of air and one (1) minute as the Donor of air. Receiver secures octopus regulator.
    II.C.22 [C-SPR] (secure octopus) Date completed_____ W/A [ ] Incomplete [ ]

12. Perform a normal Buoyancy Controlled Ascent at 30 feet/9 meters per minute. STOP and hover at 15 feet/3 meters below the surface for a period of three (3) minutes. Continue the ascent to the surface, attain positive buoyancy and then remove regulator second stage from mouth.
    II.C.29 [C-SPR] (Ascent) Date completed_____ W/A [ ] Incomplete [ ]

13. Swim to the Exit point, remove SCUBA and Exit the water.

HSA OPEN WATER LESSON PLANS –Scuba Dive Lesson 4

Participants Name _____ Date _____ Location _____

1. Buoyancy controlled descent without a descent line
2. Mask Removal
3. Controlled Emergency Ascent (CESA)
4. CESA using an Alternate Air Source
5. Marine Life Identification

1. Don, adjust and Buddy Check SCUBA equipment, with assistance if necessary.

2. Enter the water, Buddy Check SCUBA equipment, then remove, defog, replace and clear the dive mask of water, with assistance if necessary.
   Skill Development Date completed,_____Incomplete [ ]

3. Check buoyancy, turn over and swim to dive site. Inflate the Buoyancy Control Device (BCD) at the surface orally and with the low-pressure inflator.
   Skill Development Date completed,_____Incomplete [ ]

4. Deflate the Buoyancy Control Device (BCD) and perform a Buoyancy Controlled feet first descent, without a descent line. Stop and hover during the descent for a period of at least one (1) minute, then continue to the bottom and stop and hover above it without touching it.
   II.C.12 [C-SPR] (Descent, no aids) Date completed_____ W/A [ ] Incomplete [ ]
   II.C.14 [C-SPR] (Descent, hover) Date completed_____ W/A [ ] Incomplete [ ]

5. Maintain the Buddy System and Neutral Buoyancy while swimming underwater at various depths for a period of at least twenty (20) minutes.
   Skill Development Date completed,_____Incomplete [ ]

6. Perform a Controlled Emergency Swimming Ascent (CESA) and orally inflate the Buoyancy Control Device at the surface.
   II.C.23 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

7. **MARINE LIFE IDENTIFICATION**. Find, describe and identify one form of Marine Life. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
   II.C.35 [R] Date completed_____Incomplete [ ]

8. Use the Buddy System and perform a Buoyancy Controlled feet first descent, without a descent line. Stop and hover during the descent for a period of at least one (1) minute, then continue to the bottom and stop and hover above it without touching it.
   Skill Development Date completed_____Incomplete [ ]

9. Breathe from another SCUBA diver's alternate air source Octopus Regulator, Stationary for a period of at least one (1) minute, then Ascend to the surface and attain positive buoyancy by the Receiver orally inflating their BCD, and the Donor auto-inflating their BCD and providing support to the Receiver. Perform as both the Donor and Receiver of air.
   II.C.24 [B: donor omitted] Date completed_____ W/A [ ] Incomplete [ ]
   [C-SPR: Unable to orally inflate BCD as receiver of air]

10. Use the Buddy System and perform a Buoyancy Controlled feet first descent, without a descent line. Stop and hover during the descent for a period of at least one (1) minute, then continue to the bottom and stop and hover above it without touching it.
    Skill Development Date completed,_____Incomplete [ ]

11. Completely remove the Dive Mask, breathe from SCUBA for a period of at least one (1) minute, then replace and clear the dive mask of water.
    II.C.19 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

HSA OPEN WATER LESSON PLANS – Scuba Dive Lesson 5

Participants Name _____ Date _____ Location _____

1. Surface swim 100 yards/90 meters
2. Tow a fully equipped SCUBA diver
3. Tow and ventilate a Buddy diver
4. Underwater swim through obstructions
5. Ascent without a dive mask
6. Marine life identification and Pace activities

1. Don, adjust and Buddy Check SCUBA equipment, with assistance if necessary.

2. Enter the water, Buddy Check SCUBA equipment, then remove, defog, replace and clear the dive mask of water, with assistance if necessary.
   Skill Development Date completed_____ Incomplete [ ]

3. Check buoyancy, turn over at the surface, and then swim in the prone and/or on the back at least 100 yards/90 meters.
   II.C.34 [C-SPR] (Surface swim) Date completed_____ W/A [ ] Incomplete [ ]

4. At the surface, Orally inflate the buoyancy control device (BCD) of another fully equipped SCUBA diver and tow them a distance of at least 150 feet/45 meters.
   II.C.31 [B] Date completed_____ Incomplete [ ]

5. At the surface, remove the dive mask of another fully equipped SCUBA diver who is simulating unconsciousness, and administer ventilation while towing them a distance of at least 50 feet/15 meters.
   II.C.32 [B] Date completed_____ Incomplete [ ]

6. Use the Buddy System and perform a Buoyancy Controlled feet first descent, without a descent line. Stop and hover during the descent for a period of at least one (1) minute, then continue to the bottom and stop and hover above it without touching it.
   Skill Development Date completed_____ Incomplete [ ]

7. Maintain the Buddy System and neutral buoyancy, and Independently swim through weeds, or kelp, or other obstructions representative of local diving conditions, while using a compass and natural navigation to locate the end of dive exit point.
   II.C.30 [B] (Swim & navigate) Date completed_____ Incomplete [ ]

8. **MARINE LIFE IDENTIFICATION**. Find, describe and identify one form of Marine Life. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
   II.C.35 [R] Date completed,_____ Incomplete [ ]

9. Completely remove the Dive Mask underwater and swim to the surface at a steady rate of 30 feet/9 meters per minute, while breathing on SCUBA, then attain positive buoyancy, don the dive mask and clear it of water.
   II.C.20 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

10. Use the Buddy System and perform a Buoyancy Controlled feet first descent, without a descent line. Stop and hover during the descent for a period of at least one (1) minute, then continue to the bottom and stop and hover above it without touching it.
    Skill Development Date completed_____ Incomplete [ ]

11. Pace activities to prevent breathlessness, and use submersible gauges to monitor Air Pressure to prevent depletion of air supply below 500 psi/50 BAR, Bottom time and the deepest Depth.
    II.C.25 [R] (Air supply, assistance if necessary) Date completed_____ Incomplete [ ]
    II.C.33 [R] (Pace activities) Date completed_____ Incomplete [ ]

12. Perform a Buoyancy Controlled Ascent at 30 feet/9 meters per minute, without an ascent line. Stop 15 feet/3 meters from the surface and hover for 3 minutes, then continue ascent to the surface and attain positive buoyancy.
    Skill Development Date completed_____ Incomplete [ ]

HSA CONFINED WATER LESSON PLAN –Skin/Snorkel Diving Lesson 1

Participants Name _____ Date _____ Location _____

1. SWIMMING SKILLS EVALUATION

a. Swim 220 yards/200 meters without stopping, using any stroke, and no time limit.
I.A.1. Date completed,_____Incomplete [ ]

b. Survival swim for 10 minutes by treading, bobbing, floating or method best suited to the individual.
I.A.2. Date completed,_____Incomplete [ ]

c. Swim 50 feet/9 meters, or 30 seconds, underwater on a single breathe of air.
I.A.3. Date completed,_____Incomplete [ ]

2. INTRODUCTION TO MASK, SNORKEL, BCD

a. Don skin diving equipment. Assemble mask and snorkel, defog and don it and BCD, with assistance if necessary.
I.B.l [R] Date completed_____Incomplete [ ]

b. Enter and Exit the water, with assistance if necessary.
I.B.3 [R] Date completed_____Incomplete [ ]

c. Explanation, demonstration and practice of Snorkel Clearing using.
Skill development Date completed_____Incomplete [ ]

d. Adjust buoyancy at the surface to neutral buoyancy with lungs deflated.
Fresh Water Weight _____lbs/kilos
I.B.4 [C-SPR] Date completed_____Incomplete [ ]

3. INTRODUCTION TO SKIN DIVING

a. Orally inflate Buoyancy Control Device at the surface.
I.B.6 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

b. Control direction while swimming at the surface using dive mask and snorkel.
I.B.13 [B] (control direction) Date completed_____Incomplete [ ]

c. Turnover at the surface, while breathing from a snorkel, from the prone position to the back to the prone

I.B.24 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

d. Practice feet-first and head-first surface dives.
I.B.8 [C-SPR] (deflate BCD) Date completed_____ W/A [ ] Incomplete [ ]
I.B.I0 [S] (Dive head and/or feet first) Date completed_____Incomplete [ ]

e. Equalize pressure in air spaces
I.B.11 [S] Date completed_____Incomplete [ ]

f. Rest motionless at the surface with head above water, using only the Buoyancy Control Device.
I.B.7 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

g. Ascend, clear snorkel, and rest at the surface without lifting the face from the water.
I.B.14 [S] [B] (Ascend, Skin Diver) Date completed,_____Incomplete [ ]
I.B.15 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]
(Clear snorkel & breathe)
I.B.16 [C-SPR] (Rest at surface) Date completed_____ W/A [ ] Incomplete [ ]

HSA CONFINED WATER LESSON PLAN – Skin/Snorkel Diving Lesson 2

Participants Name _____ Date _____ Location _____

1. DON PROTECTIVE CLOTHING (wet suit if used locally) and skin diving equipment. Enter water.
   a. Don protective clothing and Skin Diving equipment, with assistance if necessary.
      NOTE: The use of a wet suit throughout their confined water training will protect against abrasions, provide positive buoyancy & teach them to use an essential piece of equipment that dramatically affects performance.

   b. With assistance if necessary, check your own equipment and the equipment of your buddy.
      I.B.2 [R] Date completed,_____Incomplete [ ]

2. PERFORM SWIMMING and SKIN DIVING SKILLS (DEEP WATER)

   a. Maintain the buddy system at the surface and underwater.
      I.B.9 [B] Date completed,_____Incomplete [ ]

   b. Remove, defog, replace, and clear the face mask of water at the surface.
      I.B.19 [R] Date completed,_____Incomplete [ ]

   c. Breathe through water in the snorkel.
      I.B.5 [R] Date completed,_____Incomplete [ ]

   d. Pace activities to prevent breathlessness.
      I.B.23 [R] Date completed,_____Incomplete [ ]

   e. Swimming skills; swim down to and along the bottom or 30 second breathe hold face submerged.
      I.B.12 [R] (Swim underwater or 30 seconds) Date completed,_____Incomplete [ ]
      I.B.13 [B] (Control direction) Date completed,_____Incomplete [ ]

   f. Understand and respond to standard diving signals at the surface and underwater.
      I.B.25 [R] Date completed,_____Incomplete [ ]

3. Quickly remove the Weight Belt clear of the body at the surface. Replace Weight belt at the surface.
   I.B17 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]

4. Skin Dive to the pool bottom and quickly remove Weight Belt clear of the body and ascend to the surface.
   I.B18 [S] [Skin Diver Only C-SPR] Date completed,_____Incomplete [ ]

5. Provide support, and orally inflate a buddy diver's BCD and TOW them a minimum of 50 feet/15 meters.
   I.B.20 [B] Date completed,_____Incomplete [ ]

6. Remove a buddy diver's Mask, Snorkel and Weight Belt at the surface, then tow them while applying Ventilations, a minimum of 50 feet/15 meters.
   I.B.21 [B] (Remove equipment) Date completed,_____Incomplete [ ]
   I.B.22 [B] (Ventilate) Date completed,_____Incomplete [ ]

HSA OPEN WATER LESSON PLANS –Skin/Snorkel Dive Lesson 1 & 2

Participants Name _____ Date _____ Location _____

PERFORM TWO OPEN WATER SKIN DIVES AND/OR SNORKEL DIVES, COMPLETE SKILLS AND IDENTIFY 5 MARINE LIFE FORMS. PERFORMANCE REQUIREMENTS MAY BE EVALUATED DURING BOTH DIVES AT THE INSTRUCTORS DISCRETION.

1. Don, adjust and Buddy Check skin diving equipment, with assistance if necessary.
   - II.B.1 [R](don equipment) Date completed_____ Incomplete [ ]
   - II.B.2 [R](buddy check) Date completed_____ Incomplete [ ]
2. Enter the water, with assistance if necessary, then Buddy Check equipment.
   - II.B.3 [R] Date completed_____ Incomplete [ ]
3. Remove, defog, replace and clear the dive mask of water, with assistance if necessary.
   - II.B.15 [R] Date completed_____ Incomplete [ ]
4. Buoyancy check for neutral buoyancy at the surface with lungs deflated.
   - II.B.4 [C-SPR] Date completed_____ Incomplete [ ]
5. Orally inflate the Buoyancy Control Device (BCD) at the surface.
   - II.B.5 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]
6. Use the Buoyancy System, turn over at the surface from the back to the prone position and swim to the dive site.
   - II.B.7 [C-SPR] (Turn over) Date completed_____ W/A [ ] Incomplete [ ]
   - II.B.9 [B] (Buddy system) Date completed_____ Incomplete [ ]
7. Rest at the surface for five (5) minutes with head above water supported only by the buoyancy control device.
   - II.B.6 [C-SPR] Date completed_____ W/A [ ] Incomplete [ ]
8. Use the Buddy System, deflate the buoyancy control device (BCD) and descend using head first or feet first dive to a depth of at least 10 feet/3 meters. Equalize pressure in air spaces, swim & explore the environment.
   - II.B.8 [R] (Assistance if necessary, Deflate BCD) Date completed,_____ Incomplete [ ]
   - II.B.10 [S] (Surface dive head or feet first) Date completed,_____ Incomplete [ ]
   - II.B.11 [S] (Equalize) Date completed,_____ Incomplete [ ]
   - II.B.12 [B] (Control direction) Date completed,_____ Incomplete [ ]
9. Ascend to the surface, clear the Snorkel without lifting face from the water, rest motionless for 5 minutes.
   - II.B.13 [C-SPR] (Clear snorkel) Date completed_____ W/A [ ] Incomplete [ ]
   - II.B.14 [R] (Rest) Date completed_____ Incomplete [ ]
10. Spend at least thirty (30) minutes swimming, snorkeling /skin diving & exploring underwater. Pace activities to prevent breathlessness.
    - II.B.19 [R] (Pace activities) Date completed,_____ Incomplete [ ]
11. Correctly interpret and respond to standard diving signals at the surface and underwater.
    - II.B.20 [R] Date completed _____ Incomplete [ ]
12. Provide support, orally inflate buddy diver's BCD and tow them a minimum of 50 feet/15 meters.
    - II.B.16 [B] Date completed _____ Incomplete [ ]
13. Remove buddy divers Mask, Snorkel & Weight Belt at the surface, then tow them while applying ventilations, a minimum of 50 feet/15 meters.
    - II.B.17 [B] Date completed _____ Incomplete [ ]
    - II.B.18 [B] Date completed _____ Incomplete [ ]
14. Exit the water, with assistance if necessary.
    - II.B.3 [R] Date completed,_____ Incomplete [ ]
15. **MARINE LIFE IDENTIFICATION**. Find, describe and identify five Marine Life forms. Describe by size, shape, colors, patterns, and where it lives (on the bottom, in a hole, open water) and what it is doing.
    - II.B.21 [R] Date completed,_____ Incomplete [ ]

HSA ADVANCED SCUBA DIVER
COURSE RECORD

Participant's Name _____, Date of course ____/____/_____

Address _____ City _____ State/Province _____ Zip Code _____

Country _____ Telephone _____ email _____

Open Water Certification Agency & Number _____, Level A [ ] B [ ] C [ ] Date certified ____/____/____

Instructors Name _____ HSA Instructor member # _____

ADVANCED COURSE EDUCATIONAL OBJECTIVES:

1. Develop the skills necessary for planning and executing Scuba Dives typical of recreational diving.
2. Develop an awareness and appreciation for the MARINE ENVIRONMENT, it's inhabitants and the delicate balance of the Ecosystems that support them.

PREREQUISITES: OPEN WATER SCUBA DIVER LEVEL A, B, C or equivalent is required for registration, in addition to:

1. Proficient in HSA Basic Air Sharing Skills for their HSA level of certification. ***These skills are NOT optional***.

I.C. 26. Buddy Breathe Stationary & Swimming
I.C. 27. Share Air Alternate Air Source stationary & Swimming
I.C. 28. Share Air Integrated Stationary

I.C. 31. Share Air Alternate Source Air Ascent
I.C. 32. Buddy Breathing Ascent
I.C. 45. Mid-Water Buddy Breathing & Ascent

CONFIRMED Instructors Initial _____

NOTE: B & C Level Divers 'donor of air' not required

2. Proficient in HSA Basic Life Saving Skills for their HSA level of certification, or equivalent.

I.C. 41. Tow Diver at the surface
I.C. 42. Rescue Dive from depth

CONFIRMED Instructors Initial _____

NOTE: B & C Level Divers are exempt

FIVE (5) ADVANCED OPEN WATER SCUBA DIVES, AND RECOMMENDED ORDER

1. NAVIGATION DIVE, MID-WATER BUDDY BREATHING & MARINE LIFE OBSERVATION
   During this dive there is time to develop navigation skills, buoyancy skills, and mid-water buddy breathing.
2. NIGHT DIVE & MARINE LIFE OBSERVATION
3. DEEP DIVE & MARINE LIFE OBSERVATION
4. WALL, DRIFT or MID-WATER DIVE & MARINE LIFE OBSERVATION
5. MARINE LIFE IDENTIFICATION DIVE

   Note: Dives may be conducted in the order best suited to the Instructor and availability of diving environments.

PROCEDURE TO REGISTER ADVANCED SCUBA DIVER

Complete the following forms & HSA Advanced Scuba Diver Exam in a classroom setting. Keep these forms in the Participant's records for 7 years.

Complete these forms Prior to the beginning of the HSA Advanced Course

1. HSA Advanced Scuba Diver Record
2. HSA Inherent Hazards & Risks of Diving Activities & Liability & Express Assumption of Risk Forms
3. HSA Medical History Form

Complete these Forms at the End of the HSA Advanced Course

4. HSA Training Summary, Guidelines for Safe Scuba Diving & Multilevel Certification Forms
5. HSA Advanced Scuba Diver 'Open Book' Exam (pages 32-40)

Go to the HSA Website, www.hsascuba.com, and login. In the 'Quick Links' box on the right, click-on 'Load Member to Update or Upgrade' enter member number & status then Submit. 'Manage Member' box on right, in member file, click-on 'Upgrade Open Water Diver to Advanced' and follow the instructions*. If you have a problem contact Jim: hsa@hsascuba.com

*If the participant's Open Water Scuba Diver certification is with another agency, such as PADI, you must first register them as an HSA Open Water Scuba Diver before upgrading them to HSA Advanced Scuba Diver.

There is a $15 fee for each Advanced Scuba Diver Upgrade. Payment is made during Upgrade proceedure.

HSA ADVANCED SCUBA DIVER MANUAL pages 32-40

HSA ADVANCED OPEN WATER DIVE LESSON 1 - NAVIGATION & MID-WATER AIR SHARING.

ADDITIONAL EQUIPMENT: Compass with bezel, dive slate and instrument for writing underwater.

EDUCATIONAL OBJECTIVE: Learn to use an underwater compass, compass headings, natural navigation and measuring distance traveled buoyancy control refinement, and mid-water buddy breathing with ascent.

COMPASS NAVIGATION

1. There are 360 degrees on the compass dial, 0 degrees is North, 180 degrees is South, 270 degrees is West and 90 degrees is East.
2. You can view the 360 degrees on the compass dial through the 'top-reading window', or the 'side-reading window'. There is a line that crosses through the center of both windows called a 'Lubber Line'. The Lubber Line is used to set your 'compass heading' aligned with your body. If your compass heading is not aligned (in line) with your body, you will Not travel in the direction of your heading (where you want to go).
3. There is a movable 'Bezel' surrounding the Top-reading window. It is marked with degrees that are the same as the degrees on the compass dial. The bezel has markers; two prongs at 0 degrees (North) and one prong at 180 degrees (South), these are used to set your 'bezel heading'.
4. Your compass must be held 'in line' with your body, and 'level', to head in the right direction and to allow the North-seeking needle to move freely, this needle will always point north.
5. SET A HEADING. Hold the compass level and in line with your body, point your compass Lubber Line in the direction you are 'heading'. The Lubber Line will pass through a 'compass degree number' on the compass dial viewed through the top and side-reading windows. This number is your 'heading', also called an azimuth.

   

   Note: Viewing compass degree numbers through the top-reading window may be confusing. Your 'heading degree number' will be closest to you on the dial and is hard to see. The degree number farthest from you on the dial, with the lubber line clearly passing through it, is the opposite of your heading, and appears upside down. But, the degree number on the bezel when set is the correct 'heading degree'. In these photos the heading is approximately 270 degrees.
6. SET THE BEZEL HEADING. Hold the compass level and in line with your body and your heading, then turn the bezel to align the two bezel prongs, '0 degrees', with the north-seeking pointer between them.
7. Setting the bezel heading has the following advantages. You do not have to remember your heading, just keep the north-seeking pointer between the <u>two bezel prongs</u> (0 degrees) and you will stay on your heading. Your 'return heading' is easy to read by keeping the north-seeking needle in line with the <u>bezel's single prong</u>, 180 degrees. You can read the heading 3 ways, top-reading window, side-reading window & north-seeking pointer Bezel Heading.

   

8. Navigation may require you to travel a certain distance toward a heading, then set a new heading and travel for another prescribed distance to reach a specific location. Calculating these additional navigational headings at different angles is also easier using Bezel Headings.
9. Distance traveled underwater can be measured by fin kicks or arm strokes, time, and tank pressure. You must calibrate your rate of distance traveled.
10. CALIBRATE YOUR RATE OF TRAVEL by swimming a known distance of at least 15 yards or meters, and either calculate how many fin kicks or arm strokes it took, minutes lapsed, or how much air you used in psig/bar. Divide the distance traveled by number of fin kicks or arm strokes, or minutes lapsed, or air used to determine distance traveled per unit of measure. <u>Example</u>: It took 45 breaststrokes to swim 15 yards (45 feet). 45 feet / 45 strokes = 1 foot per stroke. To travel 25 yards or meters it will take 75 breaststrokes.

11. Swimming compensation: Most divers will not swim in a straight line because one arm or leg may have a stronger thrust, and because of the tendency we have to swim around the same side of the objects we encounter. This causes divers to move laterally, usually toward their dominant side, as well as forward toward their heading, throwing them off course. To compensate for this you can practice the following three methods. 1. Develop an awareness of your stronger arm or leg, and compensate by regular shifting back toward your weaker side. 2. Alternate swimming around objects, that is if you swim around the right side of a coral head, swim around the left side of the next one. 3. Set your heading on an object, such as a coral head, swim to it, check your heading and swim to another object. Always remember if you feel lost you can make a controlled ascent and check your location.

NATURAL NAVIGATION

1. You can use the natural surroundings to navigate underwater, just as you do on land. This is accomplished by taking note of various natural landmarks and features.
2. Depth: Note the depth at your starting point, and whether the bottom slops down gradually or drops-off steeply as you travel along. Depth is the third dimension of your underwater orientation, and it is extremely useful.
3. Natural features: Note distinctive natural features such as unusual coral formations, rock formations, the orientation of a wall your swimming along, ripples in the sand, or the type of marine life at or near your desired destination.
4. Light: Note the angle of the sun, direction of shadows, and the dive boat shadow.
5. Currents & surges: Keep track of their directions, this can be very helpful in locating the shore and staying on course.
6. Sounds: Such as the clinking of the anchor chain is helpful in finding your dive boat.

II.C.36 MID-WATER BUDDY BREATHING ***Must first be performed proficiently in 'Confined Water', I.C.45.***

Establish and maintain firm contact mid-water. Initiate Mid-Water Buddy Breathing, using one regulator second stage while neutrally buoyant in mid-water. Buddy Breathe a minimum of six times stationary in mid-water, then ascend to the surface. At the surface the receiver orally inflates their buoyancy control device (BCD), while the donor power inflates their BCD and provides support for the receiver. Maintain contact, and continue buddy breathing until both buddies are positively buoyant at the surface. Perform as both donor and receiver of air.

DIVE PLAN

1. Maximum depth _____ feet/meters Maximum dive time _____ minutes
2. Descent: Stop and hover mid-water for 1 minute, descend to bottom attain neutral buoyancy.
3. Mid-water buddy breathe, ascend attain positive buoyancy. Perform as receiver & donor.
4. Calibrate individual distance estimates using fin kicks or arm strokes, time, or tank pressure.
5. NAVIGATION 1: Reciprocal Navigate, swim out and back, minimum 30 yards/meters each direction, using a compass. Set a heading & bezel, swim a predetermined distance, use bezel setting to add 180 degrees and return to starting point.
6. NAVIGATION 2: Navigate a square, minimum size 15 yards/meters X 15 yards/meters, using a compass. Set a heading & bezel, swim predetermined distance, add 90 degrees & set bezel for new heading, swim predetermined distance, repeat 2 more times to return to starting point.
7. Natural Navigation: Use natural surroundings to navigate away from and back to a starting point, a minimum of 50 yards/meters in each direction.
8. Identify one form of Marine Life.

LOG YOUR DIVE:

Date _____ / _____ / _____ Location _____ Visibility _____ Feet/Meters

Maximum Depth _____ feet/ meters Dive Time _____ minutes Water Temperature _____ degrees F/C

Descent: stop & hover one minute: _____ minute. Neutral buoyancy at bottom yes _____

Mid-Water Buddy Breathe: Depth in water column _____ ft/meters

Calibrate individual distance estimate: _____ per yard/meter, minutes/yard or meter, or air used/yard or meter.

Navigation 1, Reciprocal: Heading _____ degrees, Return heading _____ degrees

Navigation 2, Square: Heading _____ degrees, 2nd heading _____, 3rd heading _____ 4th heading _____

Navigation 3, Natural: Describe features used _____

Marine life encountered: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

HSA ADVANCED OPEN WATER DIVE LESSON 2 – NIGHT DIVE

ADDITIONAL EQUIPMENT: Dive light, dive slate and instrument for writing underwater.

EDUCATIONAL OBJECTIVE: Learn night dive planning, equipment needed, communication techniques, vertigo and disorientation recovery techniques, and activities such as marine life observation.

NIGHT DIVE PLANNING

1. Establish maximum depth and dive time.
2. Choose a dive light: A small powerful 'narrow beamed' light is less intrusive, easy to carry, and works well for marine life observation and some types of photography. A large powerful 'broad beamed' light for wreck diving and hunting.
3. Establish visual light signals, and/or tactile signals, for OK, attention, emergency and out of air.
4. Establish your activity, sightseeing, nocturnal and sleeping marine life, phosphorescence, photography, lobster hunting.
5. Establish emergency procedures for vertigo, disorientation and out of air.
6. Set beacons for locating point of exit. The types of lights used are underwater strobes and dive lights. Lights are located at the exit point, such as hung under the dive boat, or placed on the shore for shore diving.
7. Adapt eyes for night diving by avoiding light before and during diving.

VERTIGO and DISORIENTATION

1. Vertigo (dizziness) cause, absence of visual cues in a weightless environment.
2. Vertigo solutions, grasp a solid object for reference, in mid-water close your eyes and hug yourself, move slowly and keep your head still.
3. Vertigo duration, in most cases dizziness will pass in 1 to 2 minutes.
4. Disorientation, you may think you're going up when you're going down, or down when you're going up, or you may think you're moving when you're not.
5. Disorientation solutions, check gauges often when descending, swimming, hovering or ascending. Develop awareness for the pressure changes in your ears, the pull of your weight system and where the water settles in your mask. Check your bubbles with your light.

NIGHT DIVE PLAN

1. Maximum depth _____ feet/meters Maximum dive time _____ minutes
2. Set Beacon: Location _____ Type of Light _____
3. ACTIVITY: Locate and identify one sleeping fish, and one nocturnal marine life animal such as lobster or coral
4. Discuss Vertigo and Disorientation. Has either buddy experienced vertigo or disorientation. Establish a signal for stop activity and one for vertigo, plan a response
5. Abort dive if vertigo or disorientation persists
6. Discuss buddy system, stay within touching distance, and maintain frequent visual or tactile contact
7. Establish light signals for OK, attention, emergency, and out of air
8. Discuss use of lights, do not shine your light into your buddies eyes
9. Buddy check, know each other's equipment well and know how to use each other's equipment, and practice using each other's alternate air source. Dive only with well-maintained equipment, your equipment is your buddy's equipment, and your buddy's equipment is yours in an emergency
10. Have an out of air emergency plan and discuss it just prior to your night dive
11. Safety Decompression stop at 15 feet/5meters

LOG NIGHT DIVE

Date _____ / _____ / _____ Location _____ Visibility _____ Feet/Meters

Maximum Depth _____ feet/ meters Dive Time _____ minutes Water Temperature _____ degrees F/C

Activity _____

Marine life encountered: _____

Sleeping fish: Name _____ Size _____ Shape _____ Color _____ Depth _____

Nocturnal animal: Name _____ Size _____ Shape _____ Color _____ Depth _____

HSA ADVANCED OPEN WATER DIVE LESSON 3 – DEEP DIVE: 85 feet/25 meters to 100 feet/30 meters
60 feet/20 meters for Junior Scuba Diver

EQUIPMENT: Scuba equipment with alternate air source. Dive slate and instrument for writing underwater.

EDUCATIONAL OBJECTIVE: Learn deep dive and repetitive dive planning, control of gas narcosis, emergency planning, marine life observation, and problem solving at depth. Prepare Advance Scuba Diver to dive to a maximum depth of 100 feet/30 meters. Deeper depths require additional training. Prepare Junior Advanced Diver to dive to a Maximum depth of 60 feet/18 meters.

DEEP DIVE PLANNING

1. Establish depth of dive and maximum dive time.
2. Establish activity.
3. Discuss Gas Narcosis & establish hand or tactile signals for Gas Narcosis & agree to respond to buddy if signal is used.
4. Establish hand or tactile signals for: ascend, uncomfortable, unsafe behavior, low air, out of air, share air and abort dive.
5. Establish an Out of Air Emergency plan and discuss it just prior to diving.
6. Equipment check, know how to use both your own and your buddy's equipment, practice using each other's alternate air source.
7. Dive only with well-maintained equipment. Your equipment is your buddy's equipment, and your buddy's equipment is yours in an emergency.
8. Safety Decompression Stop, 3 minutes or longer at 15 feet/5 meters.
9. Safety Decompression Stop option. Shallow water dive, between 20 feet/6 meters and 15 feet/3 meters, for 3 minutes or longer.
10. Proper weighting, neutrally buoyant with 500-psig/50-bar tank pressure at 15 feet/5 meters.
11. Hang a full scuba tank at 15 feet/5 meters in case there is a need for an 'Emergency' Decompression Stop.
12. Repetitive dive planning.

GAS NARCOSIS (Inaccurately referred to as Nitrogen Narcosis)

1. Gas Narcosis occurs at approximately 80 feet/24 meters to 100 feet/30 meters for most divers.
2. Cause of Gas Narcosis; increased partial pressure of gases while breathing air, including nitrogen and oxygen, in the blood and body tissues. Note: Breathing enriched air (NITROX) does not protect against Gas Narcosis.
3. Description and recognition of symptoms.
    a. Symptoms appear suddenly, within seconds of reaching those depths.
    b. Sense of Euphoria & overconfidence.
    c. Similar to alcohol intoxication.
    d. Slows thinking and physical reaction.
    e. Affects judgment and memory.
4. Dangers caused by symptoms.
    a. Failure to check gauges; depth, time and air.
    b. Lose track of time and depth.
    c. Failure to recognize danger, so a diver may stay at depth too long, dive deeper than planned, enter overhead environments, or ignore dive buddy.
5. Symptoms become "normalized", that is the diver has Gas Narcosis, but does not know it.
6. Factors increasing the potential for Nitrogen Narcosis.
    a. High levels of CO2 caused by exertion.
    b. Low body temperature, inexperience and anxiety.
    c. Alcohol consumption, hangovers, medications and drugs.
7. Coping with the symptoms.
    a. Establish a personal standard, at what depth are you usually affected and how do you behave.
    b. Pay attention to how you feel, when you recognize symptoms acknowledge them and tell your buddy.
    c. Use the Buddy System, monitor one another's behavior.
    d. Respond quickly to Dive Buddy's signal of unsafe behavior.
    e. Ascend to a shallower depth or abort dive if either buddy is not functioning rationally.

EXAMPLE: Repetitive Dive planning using PADI Recreational Dive Planner (Dive Tables):

DIVE PLAN EXAMPLE: DEEP DIVE TO 90 FEET/28 METERS for 20 Minutes

1. DIVE DEPTH 90 feet/28 meters: ACTUAL BOTTOM TIME (ABT) 20 minutes
2. PADI Dive Planner Table 1 No decompression limits: Depth > Minutes > Pressure Group
3. End of Dive Pressure Group is "M". (Table 1 No decompression limits: 90 feet > 20 min > "M")

EXAMPLE: PLAN REPETITIVE DIVE to 50 feet/16 meters for 30 minutes

1. PLANNED DIVE DEPTH 50 feet for PLANNED ACTUAL BOTTOM TIME (ABT) 30 minutes
2. Dive 1: End of dive Pressure Group "M"
3. 1 Hour Surface Interval (SI) results in Pressure Group “D” (Table 2 Surface Interval Credit: "M" > 1:04 hours > "D")
4. Residual Nitrogen Time (RNT) for Pressure Group “D” at 50 feet is 19 minutes (White).
   (Table 3 Repetitive Dive Timetable: "D" > 50 feet > 19 minutes)
5. Planned Actual Bottom Time (ABT) 30 minutes + (RNT) 19 minutes = 49 minutes Total Bottom Time (TBT)
6. Adjusted no decompression limit for pressure group "D" at 50 feet is 61 minutes (Blue).
   (Table 3 Repetitive Dive Timetable: "D" > 50 feet > 61 minutes)
7. Table 1 No decompression limit is 80 minutes – TBT 49 minutes = 31 minutes margin for safety.
8. End of repetitive Dive Pressure Group is “P”. (Table 1 No decompression limits: 50 feet > 50 minutes TBT > "P")

DEEP DIVE PLAN USING NO DECOMPRESSION DIVE TABLES:

DEEP DIVE PLAN You will Dive this plan **or** a Deep Dive Plan using a Dive Computer (see below)

1. DIVE 1 PLANNED DIVE DEPTH _____feet/m ACTUAL BOTTOM TIME (ABT) _____minutes
2. MARINE LIFE IDENTIFICATION, Identify One Marine Life Form _____
3. ACTIVITY, PROBLEM SOLVING: Time _____ minutes [mathematical problem, count backwards, etc.]
   Add ___+___ = ____; Subtract ___-___=____; Multiply ___X___=____; Divide ___/___=_____
4. End of Dive Pressure Group (Table 1) _____

REPETITIVE DIVE PLAN You must plan this dive, but this dive does NOT have to performed.

1. Surface Interval (SI) _____ hours minutes Dive Pressure Group after Surface Interval (Table 2)__._____
2. PLANNED REPETITIVE DIVE DEPTH _____._____ feet/m ACTUAL BOTTOM TIME (ABT) _____.___ minutes
3. RNT (Table 3) for Pressure Group _____ at _____feet/m is _____ minutes
4. Total Bottom Time: Actual Bottom Time (ABT) _____ minutes + RNT _____ minutes = TBT _____ minutes
5. Adjusted no decompression limit (Table 3) at Depth _____ Feet/m for Pressure Group _____ is _____ minutes
6. End of Repetitive Dive Pressure Group (Table 1) _____
7. End Dive Pressure Group _____

YOU MAY USE A DIVE COMPUTER FOR YOUR ACTUAL DEEP DIVE

DEEP DIVE PLAN USING A DIVE COMPUTER You will dive this plan **or** a Deep Dive Plan Using No Decompression Tables Enter into the Dive Planning Function of your Dive Computer and choose the Depth for your Deep Dive. Your dive computer will return a no decompression limit for that depth based on your dive history with that particular computer.

DIVE 1 PLANNED DIVE DEPTH _____ feet/m NO DECOMPRESSION LIMIT _____ minutes
PLANNED DIVE TIME _____ minutes
MARINE LIFE IDENTIFICATION, Identify One Marine Life Form
ACTIVITY, PROBLEM SOLVING: Time _____ minutes [mathematical problem, count backwards, etc.]
DIVE TIME _____ minutes

REPETITIVE DIVE PLAN You must plan this dive, but this dive does NOT have to be performed.
Surface Interval Time _____ hours minutes
PLANNED REPETITIVE DIVE DEPTH _____ feet/m NEW NO DECOMPRESSION LIMIT _____ minutes
PLANNED REPETITIVE DIVE TIME _____ minutes
DIVE TIME _____ minutes

LOG DEEP DIVE

Date _____ / _____ / _____ Location _____ Visibility _____ Feet/Meters

Maximum Depth _____ feet/ meters Dive Time _____ minutes Water Temperature _____ degrees F/C

Activity: Problems solved _____

Problem solving: Time _____ minutes. Comments _____

Marine life encountered: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____ Air

supply Start _____ psig/bar End _____ psig/bar Used _____ psig/bar

HSA ADVANCED OPEN WATER DIVE LESSON 4 – WALL, DRIFT or MIDWATER DIVE

ADDITIONAL EQUIPMENT: Dive slate and instrument for writing underwater.

EDUCATIONAL OBJECTIVE: Learn dive planning in a bottomless environment, and the importance of buoyancy control and frequent depth gauge monitoring for safe and comfortable mid-water dive experience. Experience the unique marine life and spectacular underwater vistas that Wall, Drift and Mid-water diving have to offer.

WALL, DRIFT or MIDWATER DIVE PLANNING

1. Establish depth and maximum dive time.
2. Establish activity, dive direction, entry and exit locations.
3. Establish end of dive plan, such as enter and descend to 80 feet, dive east along wall at 80 feet depth, when tank pressure reaches 1500 psig ascend to 40 feet depth, and dive west along wall to original point of entry.
4. Maintain frequent visual or tactile contact with buddy.
5. Check gauges frequently for depth and air supply.

CAUTIONS

1. During a wall, drift or mid-water dive your depth orientation is dependent upon your depth gauge.
2. It is very easy to go deeper than planned.
3. Loss of buoyancy control can easily occur due to lack of reference to the bottom.
4. Both situations are easily avoided by; regular and frequent depth gauge monitoring, visual or tactile buddy contact, and sensitive buoyancy awareness.

WALL, DRIFT or MIDWATER DIVE PLAN

1. Start dive depth _____ feet/meters Maximum dive time _____ minutes
2. Dive direction _____ Exit location _____
3. End dive depth _____ feet/meters
4. Activity, identification of two marine life forms. Size, shape, color, patterns and environment (where it lives)
5. Equipment check and emergency plan
6. 3 minute Safety Decompression Stop at 15 feet/3 meters.

LOG WALL, DRIFT or MIDWATER DIVE

Date _____ / _____ / _____ Location _____ Visibility _____ Feet/Meters

Maximum Depth _____ feet/ meters Dive Time _____ minutes Water Temperature _____ degrees F/C

Marine life encountered: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

HSA ADVANCED OPEN WATER DIVE LESSON 5 - MARINE LIFE IDENTIFICATION DIVE

ADDITIONAL EQUIPMENT: Dive slate, instrument for writing underwater and dive light.

EDUCATIONAL OBJECTIVE: To find, observe and identify 4 marine animals and one marine plant or algae. In addition to identifying them you will spend a few minutes observing their appearance, behavior and ecological niche. This will increase your awareness and understanding of the marine environment.

DESCRIPTION: Describe the marine life by size, shape color and patterns. Write down as much detail as you can, you may have to identify the plant or animal after the dive.

ECOLOGY (from Greek 'oikos' meaning 'house') DEFINITION:
Study of the relationship among organisms and the environments is which they live, including all living and nonliving components.

ECOSYSTEM DEFINITION: All of the organisms living in a space, either large (Pacific Ocean) or small (under a rock), as an interdependent and separate unit. The relationships among species in an ecosystem are usually complex and finely balanced, therefore removal of any one species may be disastrous.

ECOLOGICAL NICHE: A place (niche) in the ecosystem that supports a specific organism, such as a Clown Fish living in a Sea Anemone. It is where they live and what their environment looks like; a coral reef, a sandy bottom, a kelp forest, a stony wall or open water (pelagic). Do they have neighbors or regular visitors? What other animals or plants are part of their environment?

LIFE STYLE: Do they live in groups such as schooling fish, in colonies like coral and sponge, in a symbiotic life style like the clown fish and sea anemone, or do they rapidly change color to blend in with the environment like the octopus.

EXAMPLE: The California Sea Otter was hunted to near extinction, which destroyed thousands of acres of Kelp Forest, the home to many species of finned fish, which were then lost. Why did this happen? The Sea Otter is the main predator of Sea Urchins, Sea Urchins eat the Kelp's holdfast that attach it to the bottom, so the kelp floats away and dies, and the finned fish, along with many other species, disappear with it. No Sea Otters equal over population of Sea Urchins and loss of the Kelp Forest Ecosystem.

LOG YOUR DIVE and ATTACH MARINE LIFE IDENTIFICATION FORM [ ]

Date _____ / _____ / _____ Location _____ Visibility _____ Feet/Meters

Maximum Depth _____ feet/ meters Dive Time _____ minutes Water Temperature _____ degrees F/C

1. MARINE LIFE ENCOUNTERED: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

Niche & Life Style: _____

2. MARINE LIFE ENCOUNTERED: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____ Niche &

Life Style: _____ 3. MARINE LIFE

ENCOUNTERED: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

Niche & Life Style: _____

4. MARINE LIFE ENCOUNTERED: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

Niche & Life Style: _____

5. MARINE LIFE ENCOUNTERED: _____

Name _____ Size _____ Shape _____ Color _____ Depth _____

Niche & Life Style: _____

MARINE LIFE IDENTIFICATION FORM

MARINE LIFE IDENTIFICATION – MARINE LIFE FORM 1

Common Name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____

Color and Patterns: _____

_____

Life Style: _____

_____

Ecological niche: _____

_____

MARINE LIFE IDENTIFICATION – MARINE LIFE FORM 2

Common Name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____

Color and Patterns: _____

_____

Life Style: _____

_____

Ecological niche: _____

_____

MARINE LIFE IDENTIFICATION – MARINE LIFE FORM 3

Common Name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____

Color and Patterns: _____

_____

Life Style: _____

_____

Ecological niche: _____

_____

MARINE LIFE IDENTIFICATION – MARINE LIFE FORM 4

Common Name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____

Color and Patterns: _____

_____

Life Style: _____

_____

Ecological niche: _____

_____

MARINE LIFE IDENTIFICATION – MARINE LIFE FORM 5

Common Name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____

Color and Patterns: _____

_____

Life Style: _____

_____

Ecological niche: _____

_____

DESCRIPTION: Describe the marine life by size, shape color and patterns. Write down as much detail as you can, you may have to identify the plant or animal after the dive.

ECOLOGY (from Greek 'oikos' meaning 'house') DEFINITION:
Ecology is the study of the relationship among organisms and the environments in which they live, including all living and nonliving components.

ECOSYSTEM DEFINITION: All of the organisms living in a space, either large (Pacific Ocean) or small (under a rock), as an interdependent and separate unit. The relationships among species in an ecosystem are usually complex and finely balanced, therefore, removal of any one species may be disastrous.

ECOLOGICAL NICHE: A place (niche) in the ecosystem that supports a specific organism, such as a Clown Fish living in a Sea Anemone. It is where they live and what their environment looks like; a coral reef, a sandy bottom, a kelp forest, a stony wall or open water (pelagic). Do they have neighbors or regular visitors? What other animals or plants are part of their environment?

LIFE STYLE: Do they live in groups such as schooling fish, in colonies like coral and sponge, in a symbiotic life style like the clown fish and sea anemone, or do they rapidly change color to blend in with the environment like the octopus.

EXAMPLE: The California Sea Otter was hunted to near extinction, which destroyed thousands of acres of Kelp Forest, the home to many species of finned fish, which were then lost. Why did this happen? The Sea Otter is the main predator of Sea Urchins, Sea Urchins eat the Kelp's holdfast that attach it to the bottom, so the kelp floats away and dies, and the finned fish, along with many other species, disappear with it. No Sea Otters equal over population of Sea Urchins and loss of the Kelp Forest Ecosystem.

HSA ADVANCED SCUBA DIVER OPEN BOOK EXAM

Student Name _____ Instructor Name _____

Date _____/_____/_____ Instructor Number _____

1. You can read your Compass heading (azimuth) through the:
    a. Top-reading window
    b. Bezel widow
    c. Side-reading window
    d. a. and c. are correct

2. Natural navigation involves the use of environmental clues such as:
    a. Angle of the sun
    b. Depth, Currents and surges
    c. Distinctive natural features such as ripples in the sand
    d. Walls, rock and coral formations
    e. All of the above

3. When wall diving it is very easy to go deeper than planned, which of the following will help prevent that from happening? There may be more than one answer.
    a. Establish maximum dive depth, direction and end of dive plan.
    b. Check guages frequently for depth and air supply.
    c. Establish activity, dive time, direction and exit location.
    d. Maintain frequent visual or tactile contact with buddy.

4. There are 360 degrees on a compass, which of the following is correct:
    a. 90 degrees-north, 270 degrees-east, 0 degrees-south, 180 degrees-west
    b. 270 degrees-west, 180-north, 90 degrees-south, 0 degrees-east
    c. 270 degrees-west, 180 degrees-south, 90 degrees-east, 0 degrees-north
    d. 0 degrees-north, 270 degrees-east, 180 degrees-south, 90 degrees-west
    e. None of the above

5. Mid-water buddy breathing is an important skill because an out-of-air emergency can happen anywhere in the water column. When performing this skill there are several important things to remember, which of the following is correct?
    a. Establish and maintain firm contact mid-water, both buddies will continuously exhale a small stream of bubbles whenever the regulator is not in their mouth, and continue to buddy breathe to the surface.
    b. At the surface the donor of air will orally inflate their BCD, while the receiver of air orally inflates their BCD and continues to breathe from the donors air supply.
    c. Establish and maintain firm contact mid-water, continue to buddy breathe to the surface, and both buddies will continuously exhale a small stream of bubbles whenever the regulator is not in their mouth. At the surface each buddy will attain positive buoyancy.
    d. At the surface the donor of air will maintain firm contact, continue buddy breathing, power-inflate their BCD, and provide support while the receiver of air orally inflates their BCD.
    e. a. and d. are correct
    f. b. and c. are correct

6. You are planning a dive to 85 feet/25 meters, what Gas Narcosis hand or tactile communication signs will you agree on prior to diving? There may be more than one answer.
    a. Ascend, low air.
    b. Out of air, share air.
    c. Gas narcosis, unsafe behavior.
    d. Abort dive, uncomfortable.

7. Activities and conditions may increase the potential for Gas Narcosis, the correct answer is:
    a. Hypothermia, hangovers, anxiety.
    b. Multiply days of diving, medications.
    c. Exertion, more than one deep dive per day, drugs.
    d. Alcohol consumption, lack of rest, inexperience in deep diving.
    e. All of the above.

8. When describing a marine life form include the following.
    a. Size, shape, color and patterns.
    b. Depth, water temperature, environment such as coral reef or sandy bottom.
    c. Behavior; such as schooling, pelagic or bottom dweller.
    d. Bio-interaction; such as clean other fish or hunt undercover with non-predators.
    e. a. and b. are correct
    f. All of the above

9. It is important to buddy check each other's Scuba equipment for proper assembly and function, and how it operates because:
    a. In an emergency your buddy may have to operate your Scuba equipment for you, such as inflate your BCD.
    b. This is an industry standard that primarily helps you get to know your dive buddy, so your dive will go well.
    c. If you have an out-of-air emergency, your dive buddy's Scuba equipment becomes your equipment, so you must know what it is, where it is and how to use it.
    d. Dive equipment is all essentially the same, so the buddy check is simply to ensure proper assembly.
    e. a. and c. are correct.

10. An ecosystem is composed of all of the organisms living in a space, such as the Pacific Ocean, as an inter-dependent and separate unit. An Ecological Niche is:
    a. Is a place within an ecosystem that supports' a specific organism or organisms.
    b. A sea anemone with resident Clown Fish.
    c. The kelp hold fast (similar to a root) that houses brittle stars.
    d. A coral reef.
    e. All of the above

11. Gas Narcosis occurs in most divers at approximately 80 feet/24 meters to 100 feet/30 meters. It is caused by an increased partial pressure of gases, including nitrogen & oxygen, in the blood and tissues. Which of the following is <u>not</u> true?
    a. The diver develops a sense of euphoria, similar to alcohol intoxication, within a few seconds of reaching those depths.
    b. The divers thinking and physical reactions may slow, but their judgment and memory are not affected.
    c. The diver may become overconfident and fail to recognize dangers, change the dive plan and ignore their dive buddy.
    d. The symptoms and effects of Gas Narcosis appear suddenly and may not be noticed by the diver.

12. Night diving provides unique activities ranging from observing nocturnal animals hunting & fish sleeping, to photography or lobster hunting. Because it is night there may be a lack of visual clues in a weightlessness environment, therefore the diver may experience disorientation and/or vertigo (dizziness). If this occurs, what should the diver do to solve these problems?
    a. Move slowly and keep your head still, to recover from dizziness.
    b. Check gauges often, and check bubbles with a light, to recover from disorientation.
    c. In mid-water, close your eyes and hug yourself, to recover from dizziness.
    d. Develop awareness for pressure changes in your ears, the pull of your weights and where the water settles in your mask, to recover from disorientation.
    e. All of the above.

13. When diving you must end your dive with a safety decompression stop of:
    a. 2 minutes at 10 feet/3 meters.
    b. A shallow water dive, between 20 feet/6 meters and 15 feet/3 meters, for 3 minutes or longer.
    c. 3 minutes or longer at 15 feet/5 meters.
    d. b. and c. are correct.

14. The movable bezel surrounding the Top-reading window has 360 degrees laid out the same as the degrees on the compass dial. By setting your bezel heading it will be much easier to remember and read your compass heading, and to calculate your return heading. To set your 'bezel heading', you will:
    a. Aim your compass lubber line in the direction you are heading to set your compass heading.
    b. Hold the compass level and in line with your compass heading, then turn the bezel aligning the north pointing arrow between the two bezel markers located at 0 degrees on the bezel.
    c. Hold the compass level and in line with your compass heading, then turn the bezel aligning the north-pointing arrow with the single bezel marker located at 180 degrees on the bezel.
    d. Hold the compass level and in line with your compass heading, then turn the bezel aligning the bezel markers with the lubber line.
    e. a. and b. are correct.

15. When planning a night dive you must consider a number of specialized issues, such as:
    a. Establish emergency procedures for vertigo, disorientation and out of air.
    b. Set a beacon light at point of planned exit.
    c. Establish visual light signals for OK, attention, out of air and emergency.
    d. Avoid light before diving.
    e. All of the above.

16. You are diving from a boat on a coral reef moored in 20 feet/6 meters of water. Your dive site is a wall located 30 feet/9 meters from the mooring. Your dive plan is to descend on the mooring, swim down a slopping bottom to the shoulder of the wall that begins at about 40 feet/12 meters in depth, then descend to 80 feet/24 meters and make the dive along the wall. Your dive will include:
    a. Note the depth at the mooring (20 feet/6 meters), set a heading toward the wall and set your bezel. Swim to the shoulder of the wall counting your kicks or strokes. Make a mental note of the depth (40 feet/12 meters), the direction of current and a distinctive environmental feature at the shoulder of the wall. Descend to 80 feet/24 meters and begin your dive along the wall. When you reach half your air pressure, note your bottom time, turn around and go back to the boat.
    b. Note the depth at the mooring (20 feet/6 meters), set a heading toward the wall, and set your bezel. Swim to the shoulder of the wall counting your kicks or strokes. Make a mental note of the depth (40 feet/12 meters), the direction of current and a distinctive environmental feature at the shoulder of the wall. Descend to 80 feet/24 meters and begin your dive into the current along the wall. When you reach half your air pressure, note your bottom time, turn around, ascend to 40 feet/12 meters, and return along the wall.
    c. Return along the wall to the boat. When you turned around your bottom time was 22 minutes. After swimming for about 20 minutes back toward the boat, ascend to 40 feet/12 meters and find the distinctive feature you noted at the beginning of the dive. Set a return heading toward the boat using your bezel, and swim to the boat.
    d. Return along the wall at a depth of 40 feet/12 meters. When you turned around your bottom time was 22 minutes. After swimming for about 10 minutes begin looking for the distinctive environmental feature you noted at the beginning of the dive. When you find it, set a return heading toward the boat using your bezel, swim back to the boat counting your kicks or strokes, keeping track of the depth.
    e. a. and c. are correct.
    f. b. and d. are correct.

17. A good example of Ecosystem destruction through the removal of just one species of marine life happened in California before anyone knew how important the balance of nature was. Thousands of acres of Kelp forests were lost due to:
    a. Sea Otters eating the holdfasts of the kelp.
    b. Sea Urchins eating the holdfasts of the kelp.
    c. Hunters killing off the sea otters.
    d. Sea Otters praying on Sea Urchins.

18. To set a compass heading (azimuth), and to swim along that heading to your destination, your compass must be:
    a. Held with the lubber line aligned with your body.
    b. Held with the lubber line at right angles to your body.
    c. It doesn't matter because the compass pointer will always point north.
    d. Held with the lubber line aligned slightly to the left if you are right handed, or slightly to the right if you are left handed.

19. When preparing to dive, it is most important to clearly plan and agree upon:
    a. Hand or tactile communication signs.
    b. An out of air emergency plan.
    c. Activity and maximum dive time.
    d. Dive depth and safety decompression stop.
    e. b. and d. are correct.
    f. All of the above.

20. During a night dive you notice that your buddy appears to going up, but you are not sure if he is going up or you are going down. The solution to your disorientation is to:
    a. Check your weight system by lifting up on it.
    b. Quickly swim toward your buddy.
    c. Check your bubbles with your light.
    d. Stay where you are and signal your buddy to come to you.
    e. a. and c. are correct.

HSA ADVANCED SCUBA DIVER EXAM ANSWERS Each question has a value of 1 point

1. You can read your Compass heading (azimuth) through the: **Page 32 #3** **Answer: d**
   a. Top-reading window — **a. +1/2**
   b. Bezel widow — **b. +0**
   c. Side-reading widow — **c. +1/2**
   d. a. and c. are correct — **d. +1**

2. Natural navigation involves the use of environmental clues such as: **Page 33**
   a. Angle of the sun — **Answer: e**
   b. Depth, Currents and surges — **a. +1/4**
   c. Distinctive natural features such as ripples in the sand — **b. +1/4**
   d. Walls, rock and coral formations — **c. +1/4**
   e. All of the above — **d. +1/4**, **e. +1**

3. When wall diving it is very easy to go deeper than planned, which of the following will help prevent that from happening? There may be more than one answer. **Page 37** **Answer: a, b, c & d**
   a. Establish maximum dive depth, direction and end of dive plan. — **a. +1/4**
   b. Check gauges frequently for depth and air supply. — **b. +1/4**
   c. Establish activity, dive time, direction and exit location. — **c. +1/4**
   d. Maintain frequent visual or tactile contact with buddy. — **d. +1/4**

4. There are 360 degrees on a compass, which of the following is correct: **Page 32** **Answer: c**
   a. 90 degrees-north, 270 degrees-east, 0 degrees-south, 180 degrees-west — **a. +0**
   b. 270 degrees-west, 180-north, 90 degrees-south, 0 degrees-east — **b. +0**
   c. 270 degrees-west, 180 degrees-south, 90 degrees-east, 0 degrees-north — **c. +1**
   d. 0 degrees-north, 270 degrees-east, 180 degrees-south, 90 degrees-west — **d. +0**
   e. None of the above — **e. +0**

5. Mid-water buddy breathing is an important skill because an out-of-air emergency can happen anywhere in the water column. When performing this skill there are several important things to remember, which of the following is correct? **Page 33** **Answer: e**
   a. Establish and maintain firm contact, both buddies will continuously exhale a small stream of bubbles whenever the regulator is not in their mouth, and continue to share air until both buddies are positively buoyant at the surface. — **a. +1/2**
   b. The donor of air will orally inflate their BCD, while the receiver of air orally inflates their BCD and continues to breathe from the donors air supply. — **b. +0**
   c. Establish and maintain firm contact, continue to share air to the surface, and both buddies will continuously exhale a small stream of bubbles whenever the regulator is not in their mouth. At the surface each buddy will attain positive buoyancy. — **c. +0**
   d. The donor of air will power inflate their BCD, continue buddy breathing and provide support while the receiver orally inflates their BCD. — **d. +1/2**
   e. a. and d. are correct — **e. +1**
   f. b. and c. are correct — **f. +0**

6. You are planning a dive to 85 feet/25 meters, what hand or tactile communication signs will you agree on prior to diving? There may be more than one answer. **Page 35. #4** **Answer: b & d**
   a. Ascend, low air. — **a. +1/4**
   b. Out of air, share air. — **b. +1/4**
   c. Gas narcosis, unsafe behavior. — **c. +1/4**
   d. Abort dive, uncomfortable. — **d. +1/4**

7. Activities and conditions may increase the potential for Gas Narcosis: **Page 35** **Answer: e**

a. Hypothermia, hangovers, anxiety. **a. +1/4**
b. Multiply days of diving, medications. **b. +1/4**
c. Exertion, more than one deep dive per day, drugs. **c. +1/4**
d. Lack of rest, inexperience in deep diving. **d. +1/4**
e. All of the above. **e. +1**

8. When describing a marine life form include the following. **Page 38** **Answer: f**

a. Size, shape, color and patterns. **a. +1/4**
b. Depth, water temperature, environment such as reef or sandy bottom. **b. +1/4**
c. Behavior; such as schooling, pelagic, or bottom dweller. **c. +1/4**
d. Bio-interaction; such as clean other fish or hunt undercover with non-predators, **d. +1/4**
e. a. and b. are correct **e. +1/2**
f. All of the above **f. +1**

9. It is important to buddy check each other's Scuba equipment for proper assembly and function, and how it operates because: **Page 35** **Answer: e**

a. In an emergency your buddy may have to operate your Scuba equipment for you, such as inflate your BCD. **a. +1/2**
b. This is an industry standard that primarily helps you get to know your dive buddy, so your dive will go well. **b. +0**
c. If you have an out-of-air emergency, your dive buddy's Scuba equipment becomes your equipment, so you must know what it is, where it is and how to use it. **c. +1/2**
d. Dive equipment is essentially the same, so the buddy check is to ensure proper assembly. **d. +0**
e. a. and c. are correct **e. +1**

10. An ecosystem is composed of all of the organisms living in a space, such as the Pacific Ocean, as an inter-dependent and separate unit. An Ecological Niche is: **Page 38** **Answer: e**

a. Is a place within an ecosystem that supports' a specific organism or organisms. **a. +1/4**
b. A sea anemone with resident Clown Fish. **b. +1/4**
c. The kelp hold fast (similar to a root) that houses brittle stars. **c. +1/4**
d. A coral reef. **d. +1/4**
e. All of the above **e. +1**

11. Gas Narcosis occurs in most divers at approximately 80 feet/24 meters to 100 feet/30 meters. It is caused by an increased partial pressure of gases, including nitrogen & oxygen, in the blood & tissues. Which of the following is **not** true? **Page 35** **Answer: b**

a. The diver develops a sense of euphoria, similar to alcohol intoxication, within a few seconds of reaching those depths. **a. +0**
b. The divers thinking and physical reactions may slow, but their judgment and memory are not affected. **b. +1**
c. The diver may become overconfident and fail to recognize dangers, change the dive plan and ignore their dive buddy. **c. +0**
d. Symptoms & effects of Gas Narcosis appear suddenly & may not be noticed by the diver. **d. +0**

12. Night diving provides unique activities ranging from observing nocturnal animals hunting & fish sleeping, to photography or lobster hunting. Because it is night there may be a lack of visual clues in a weightlessness environment, therefore the diver may experience disorientation and/or vertigo (dizziness). If this occurs, what should the diver do to solve these problems? **Page 34** **Answer: e**

a. Move slowly and keep your head still, to recover from dizziness. **a. +1/4**
b. Check gauges often, and check bubbles with a light, to recover from disorientation. **b. +1/4**
c. In mid-water, close your eyes and hug yourself, to recover from dizziness. **c. +1/4**
d. Develop awareness for pressure changes in your ears, the pull of your weights and where the water settles in your mask, to recover from disorientation. **d. +1/4**
e. All of the above **e. +1**

13. When diving you must end your dive with a safety stop of: **Page 35** **Answer: d**

    a. 2 minutes at 10 feet/3 meters **a. +0**
    b. A shallow water dive, between 20 feet/6 meters & 15 feet/5 meters, for 3 minutes or longer. **b. +1/2**
    c. 3 minutes at 15 feet/3 meters or longer **c. +1/2**
    d. a &c are correct **d. +1**
    e. None of the above **e. +0**

14. The moveable bezel surrounding the Top-reading window has 360 degrees laid out the same as the degrees on the compass dial. By setting your bezel heading it will be much easier to remember and read your compass heading, and to calculate your return heading. To set your 'bezel heading', you will: **Page 32** **Answer: e**

    a. Aim your compass lubber line in the direction you are heading. **a. +1/2**
    b. Hold the compass level and in line with your compass heading, then turn the bezel aliening the north pointing arrow between the two bezel markers located at 0 degrees on the bezel **b. +1/2**
    c. Hold the compass level and in line with your compass heading, then turn the bezel aliening the north-pointing arrow with the single bezel marker located at 180 degrees on the bezel. **c. +0**
    d. Hold the compass level and in line with your compass heading, then turn the bezel aliening the bezel markers with the lubber line. **d. +0**
    e. a. and b. are correct. **e. +1**

15. When planning a night dive you must consider a number of specialized issues, such as: **Page 34** **Answer: e**

    a. Establish emergency procedures for vertigo, disorientation and out of air. **a. +1/4**
    b. Set a beacon light at the planned point of exit. **b. +1/4**
    c. Establish visual light signals for OK, attention, out of air, & emergency. **c. +1/4**
    d. Avoid light before diving. **d. +1/4**
    e. All of the above. **e. +1**

16. You are diving from a boat on a coral reef moored in 20 feet/6 meters of water. Your dive site is a wall located 30 feet/9 meters from the mooring. Your dive plan is to descend on the mooring, swim down a slopping bottom to the shoulder of the wall that begins at about 40 feet/12 meters in depth, descend to 80 feet/24 meters and make the dive along the wall. Your dive will include: **Pages 32-34** **Answer: f**

    a. Note the depth at the mooring (20 feet/6 meters), set a heading toward the wall and set your bezel. Swim to the shoulder of the wall counting your kicks or strokes. Make a mental note of the depth (40 feet/12 meters), the direction of current and a distinctive environmental feature at the shoulder of the wall. Descend to 80 feet/24 meters and begin your dive along the wall. When you reach half your air pressure, note your bottom time, turn around and go back to the boat. **a. +0**

    b. Note the depth at the mooring (20 feet/6 meters), set a heading toward the wall, set your bezel and swim to the shoulder of the wall counting your kicks or strokes. Make a mental note of the depth (40 feet/12 meters), the direction of current and a distinctive environmental feature at the shoulder of the wall. Descend to 80 feet/24 meters and begin your dive into the current along the wall. When you reach half your air pressure, note your bottom time, ascend to 40 feet/12 meters, and return along the wall. **b. +1/2**

    c. Return along the wall to the boat. When you turned around your bottom time was 22 minutes. After swimming for about 20 minutes back toward the boat, ascend to 40 feet/12 meters and find the distinctive feature you noted at the beginning of the dive. Set a return heading toward the boat, and swim to the boat. **c. +0**

16. (cont.)

d. Return along the wall at a depth of 40 feet/12 meters. When you turned around your bottom time was 22 minutes. After swimming for about 10 minutes begin looking for the distinctive environmental feature you noted at the beginning of the dive. When you find it, set a return heading toward the boat using your bezel, swim back to the boat counting your kicks or strokes, keeping track of the depth. **d. +1/2**

e. a and c are correct **e. +0**

f. b and d are correct **f. +1**

17. A good example of Ecosystem destruction through the removal of just one species of marine life happened in California before anyone knew how important the balance of nature was. Thousands of acres of Kelp forests were lost due to: **Page 38** **Correct: b & c**

a. Sea Otters eating the holdfasts of the kelp. **a. +0**

b. Sea Urchins eating the holdfasts of the kelp. **b. +1/2**

c. Hunters killing off the sea otters. **c. +1/2**

d. Sea Otters praying on Sea Urchins. **d. +0**

18. To set a compass heading (azimuth), and to swim along that heading to your destination, your compass must be: **Page 32** **Answer: a**

a. Held with the lubber line aligned with your body. **a. +1**

b. Held with the lubber line at right angles to your body. **b. +0**

c. It doesn't matter because the compass pointer will always point north. **c. +0**

d. Held with the lubber line aligned slightly to the left if you are right handed, or slightly to the right if you are left handed. **d. +0**

19. When preparing to dive, it is most important to clearly plan and agree upon: **Page 35** **Answer: f**

a. Hand or tactile communication signs. **a. +1/4**

b. An out of air emergency plan. **b. +1/4**

c. Activity and maximum dive time. **c. +1/4**

d. Dive depth and safety decompression stop. **d. +1/4**

e. b. and d. are correct. **e. +1/2**

f. All of the above. **f. +1**

20. During a night dive you notice that your buddy appears to going up, but you are not sure if he is going up or you are going down. The solution to your disorientation is to: **Page 34 Vertigo #4 & 5** **Answer: e**

a. Check your weight system by lifting up on it. **a. +1/2**

b. Quickly swim toward your buddy. **b. +0**

c. Check your bubbles with your light. **c. +1/2**

d. Stay where you are and signal your buddy to come to you. **d. +0**

e. a. and c. are correct. **e. +1**

CONGRATULATIONS!
Welcome to the Handicapped Scuba Association

PROCEDURES FOR ACTIVITIES ENROLLMENT

Following are the forms used to enroll participants into HSA Courses

Enrolling participants into HSA Scuba Diving Courses, Skin/Snorkel Diving Courses and other diving related activities requires the follow forms to be filled out in a Classroom Setting with an HSA Instructor available to instruct and answer questions. Keep these forms in the Participant's records for seven (7) years.

1. HSA PARTICIPANT'S INFORMATION FORM, CONFIDENTIAL: This will help you evaluate your student's needs, gives the participant confidence in your ability to address their special needs, and helps create an open line of communication.
2. HSA ACTIVITIES REGISTRATION FORM: Check the Activity type, fill in the Participant's name, contact and personal information.

3. HSA INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES FORM: Have your students read and sign this form PRIOR to reading and signing the HSA Liability and Express Assumption Risk form. The purpose of this form is to insure the student understands the risks they are accepting when they engage in diving activities.
4. HSA LIABILITY AND EXPRESS ASSUMPTION OF RISK FORM: Have your student read it carefully, fill in all the blanks and sign it.
5. HSA MEDICAL HISTORY FORM: Have your student fill in personal information and answer the Medical History Questionnaire. If their response is positive to any of the conditions listed they are then required to have a physical examination and be approved for diving by a Medical Doctor.
6. MEDICAL EXAMINATION: The student with a disability must have a physical examination and obtain medical approval by a licensed physician, because a physical disability could be interpreted as "A condition contrary to safe diving". 'Conditions' contrary to safe diving require a physical examination and medical approval for diving by a licensed physician.

PROCEDURES FOR REGISTERING NEW MEMBER

For Open Water Scuba Diver, Advanced Scuba Diver, Skin/Snorkel Diver, complete these following forms in a classroom setting. Keep these forms in the Participant's records for 7 years.

4. HSA Training Summery Form
5. HSA Guidelines for Safe Scuba Diving (or Skin/Snorkel Diving)
6. HSA Open Water Scuba Diver Multilevel Certification Form (or Skin/Snorkel Diver)

Go to the HSA Website, www.hsascuba.com, and login. In the 'Quick Links' box on the right click-on 'Register New Member' for Open Water Scuba Diver or 'Register New Dive Buddy' and follow the instructions. If you have problems contact Jim at hsa@hsascuba.com

Dive Buddy Registration: You must purchase 1 Dive Buddy Kit (Manual), paper copy or electronic, for each Dive Buddy Candidate. You will be given a 'manual credit' for each manual that will allow you to register your Dive Buddy candidates.

There is 'also' a Registration fee for each candidate that you can pay when you register them, or you can purchase 'registration credits' in advance from the HSA Store. The HSA Store is in the 'Training Materials' dropdown menu, upper right.

PARTICIPANTS INFORMATION FORM, CONFIDENTIAL

Participant's Name _____ Telephone _____

Address _____ Email _____

City _____ State/Province _____ Postal Code _____

Country _____ Date of Birth _____ / _____ / _____
Month Day Year

In case if emergency contact _____ Telephone _____

Are you a swimmer? _____ How long? _____ How well do you swim? Excellent [ ] Good [ ]

Do you have previous SCUBA diving and/or Snorkeling experience? _____

When? _____ Where? _____ Number of Dives? _____

What is your physical disability? _____

Do you have loss of sensory response (feeling)? _____ Where? _____

Do you use a catheter? _____ What type? Indwelling [ ] External [ ] Intermittent [ ] Other _____

Do you have a bowel program? _____ Have you developed decubiti? _____

Have you experienced Hyperreflexia (Autonomic Dysreflexia)? _____

Have you experienced Orthostatic Hypo-tension (low blood pressure)? _____

Has your respiratory system been affected? _____ Explain _____

Do you have a good cough reflex? _____ Explain _____

Are you able to perspire? _____ Do you have thermoregulation problems? _____

Do you have loss of muscle control in the mouth or lips? _____ Explain _____

Do you have speech impairment? _____ Explain _____

Do you have a hearing loss? _____ Explain _____

Explain any other medical conditions not covered _____

_____

Doctor's Name _____ Telephone _____

Address _____ City _____ State/Province _____

Country _____ Postal Code _____

Date _____ / _____ / _____

HSA INTERNATIONAL

ACTIVITY REGISTRATION FORM

[ ] OPEN WATER SCUBA COURSE [ ] ADVANCED SCUBA COURSE [ ] DIVE BUDDY COURSE
[ ] INSTRUCTOR COURSE [ ] INTRODUCTION TO SCUBA COURSE [ ] GUIDED DIVES
[ ] OTHER _____

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

ADDRESS _____

CITY/STATE/PROVINCE _____ POSTAL CODE _____

COUNTRY _____ TELEPHONE _____ EMAIL _____

HEIGHT _____ WEIGHT _____DISABILITY TYPE _____

HSA INSTRUCTOR NAME _____ HSA INSTRUCTOR # _____

INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES
READ & SIGN BEFORE COMPLETING THE HSA LIABILITY RELEASE

To SCUBA DIVE safely you need to know a few basic rules & procedures that are very IMPORTANT because you are in and under the water, in the sun, around hard surfaces, and breathing compressed air. These safety rules and procedures will be covered in detail during your training course.

a. Breathe: This is the first rule, and it is completely up to you. It is very easy, you just breathe all the time, but it is the MOST IMPORTANT thing you will have to do. If you hold your breath you can rupture your lungs, which is VERY SERIOUS! This is called an Air Embolism and it can cause very serious injuries, even death.
b. Ears: Your ears may experience some pressure, or even hurt, when you descend underwater. This is normal, and you have probably already experienced this pressure in your ears if you have dove underwater, flown in an airplane, or driven in the mountains. You must 'equalize' this pressure, if you cannot it can cause damage to your ears and sinuses.
c. Sun: Wear sunscreen, you will burn easier around water, even if it is overcast!
d. Thermoregulation: Have water and shade available to avoid overheating.
e. Protective clothing: Keep your legs and feet covered. The pool and open water environments have hard and abrasive surfaces that can cause abrasions and tissue breakdown for people with reduced circulation.
f. Dive Duration: Because you are breathing compressed air underwater your body fluids and tissues absorb more nitrogen than at sea level. This build-up of nitrogen can cause decompression sickness (DCS). DCS can result in from mild to very serious injuries, even death. To avoid this we have 'no decompression limits' set for the time one can spend at various depths, making it easy to avoid.
g. Hard Surfaces: Place padding, such as an exercise mat or towel, on pool and boat deck surfaces, and on other hard surfaces, to protect the skin, if needed.
h. Transfer from your wheelchair: Be sure to tell those assisting your transfer what method you use, and then have them explain what they intend to do before they assist you. Have them lift your legs (not drag them) at the knee, so that your legs bend naturally. Be sure to tell them if you have poor balance and to provide support until you are stable.
i. Ascend: Swim slowly, 30 feet/minute, to the surface. Do NOT use a Buoyancy Control Devise (BCD) to ascend, swim to the surface, when your head breaks the surface, inflate the BCD, and attain positive buoyancy and comfort at the surface BEFORE removing your regulator. Swimming too fast to the surface can cause an Air Embolism, which is very serious.
j. Exit the water: Remove your weights, then Scuba unit. Be sure you have in-water and surface support. Exit the water, with assistance if necessary. Your in-water assistant will support your legs during the exit.
k. Recompression Chamber: A recompression chamber is needed to treat various diving related injuries, primarily Decompression Sickness and Air Embolism.

Participant Name _____ Signature _____ Date _____

Witness Name _____ Signature _____ Date _____

Name of Parent or Guardian _____ Signature _____ Date _____

HSA INTERNATIONAL

LIABILITY RELEASE AND EXPRESS ASSUMPTION OF RISK AGREEMENT

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

HSA INSTRUCTOR NAME _____ HSA INSTRUCTOR # _____

PLEASE READ CAREFULLY, ASK QUESTIONS IF NECESSARY, AND FILL IN ALL THE BLANKS BEFORE SIGNING.
CAUTION: READ & SIGN 'INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES' BEFORE SIGNING THIS FORM.

I, _____, herby affirm and acknowledge that I am aware of the inherent hazards and risks of Snorkeling, Skin diving and Scuba Diving (hereinafter referred to as 'diving activities'). I fully understand that these risks can lead to severe injury and even death.

I understand that diving with compressed air involves risks of decompression sickness, embolism or other hyperbaric injuries that require treatment in a recompression chamber. I further understand that these diving activities may be conducted at sites that are remote by time and distance from a recompression chamber. Additionally, I understand that there are also risks involved with dive travel, including, but not limited to, dive boat accidents, and traveling to and from the dive sites. Nevertheless, I choose to proceed with such diving activities and I freely accept and expressly assume all risks, dangers and hazards that may arise from such diving activities which could result in injury, loss of life and property damage to me.

I understand and agree that neither the professional staff of _____, nor the facility _____, nor others _____, nor the Handicapped Scuba Association, nor its affiliate and subsidiary corporations, nor any of their respective employees, officers, agents or assigns, and volunteers, (hereinafter referred to as 'Released Parties') may be held liable or responsible in any way for the injury, death, or other damages to me or my family, heirs, or assigns that may occur as a result of my participation in these diving activities, or as a result of the negligence of any party, including the Released Parties, whether passive or active.

In consideration of being allowed to participate in these diving activities, as well as the use of any facilities and the use of equipment, I hereby personally assume all risks in connection with said diving activities, for any harm, injury or damage that may befall me while I am participating, including all risks connected therewith, whether foreseen or unforeseen.

I further save and hold harmless said diving activities and Released Parties from any claim or lawsuit by me, my family, estate, heirs, or assigns, arising out of my participation in these diving activities including claims arising during or after the diving activities.

I also understand that snorkeling, skin diving and scuba diving are physically strenuous activities and that I will be exerting myself during the diving activities, and that if I am injured as a result of, but not limited to, a heart attack, panic, or hyperventilation, that I expressly assume the risk of said injuries and that I will not hold the Released Parties responsible for the same.

I hereby declare that I am of legal age and competent to sign this agreement or, if not, that my parent or guardian shall sign on my behalf, and that my parent or guardian is in complete understanding and concurrence with this agreement.

I hereby state and agree that this agreement will be effective for all diving activities in which I participate until revoked in writing by the Released Parties.

I have read and understand this agreement, and agree to be bound by it.

Signature of Participant _____ Date _____/ _____/ _____

Witness Name _____ Signature _____

Name of Parent or Guardian _____ Signature _____

HSA INTERNATIONAL
MEDICAL HISTORY FORM

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

ADDRESS _____

CITY/STATE/PROVINCE _____ POSTAL CODE _____

COUNTRY _____ TELEPHONE _____ EMAIL _____

INSTRUCTOR'S NAME _____ HSA MEMBER NUMBER _____

Medical History Questionnaire

The purpose of this questionnaire is to determine if you should be examined by a doctor prior to participating in a diver-training course. A positive response to a question does not necessarily disqualify you; it simply means you must seek approval from a doctor before engaging in diving activities. Please answer the follow questions Yes or No.

____ Do you take prescription medication?
____ Are you currently receiving medical care?
____ Are you, or could you be, Pregnant?
____ Do you currently smoke tobacco?
____ Do you have high cholesterol?
____ Asthma or wheezing with exercise
____ Seizure disorder, epilepsy or convulsions?
____ Frequent colds, sinusitis or bronchitis?
____ Severe hay fever or allergy?
____ Pneumothorax, collapsed lung?
____ Lung disease?
____ Chest disease or chest surgery?
____ Blackouts or fainting (loss of consciousness)?
____ Diabetes mellitus, even if controlled by diet?
____ Recurring Ear or Sinus problems?
____ Sinus surgery?
____ Ear surgery, loss of hearing or balance?
____ Recurring Headaches or Migraines?
____ Decompression sickness or diving accident?
____ Hernia?
____ Behavioral health, mental or psychological? (Anxiety attacks, fear of open/ closed spaces)
____ Heart disease?
____ Angina, Heart or Blood Vessel surgery?
____ Family history of heart attack or stroke?
____ High blood pressure?
____ High blood pressure medication?
____ Bleeding or other blood disorders?
____ Ulcers or ulcer surgery?
____ Recurring Back problems?
____ Back or spinal surgery?
____ Frequent Motion sickness?
____ Head injury with loss of consciousness?
____ Drug or alcohol treatment in past 5 years?
____ Tracheotomy?
____ Colostomy or ileostomy?
____ Medically treated for dysentery or dehydration?
____ Have you been diagnosed with COVID-19

I agree to accept responsibility for omissions regarding my failure to disclose any existing or past health condition.

Participant's Signature Date Signature of Parent or Guardian Date

PHYSICIAN

This person has applied for training, or is currently certified to engage in the sport of Scuba Diving. Based on a physical examination, your opinion of the applicants Medical Fitness for scuba diving is requested.

____ I find no Medical conditions that I consider incompatible with Scuba Diving.

____ I am UNABLE to recommend this person for Scuba Diving.

Remarks _____

_____, M.D. Date of Medical Exam ____/ ____ / _____
Physician's Signature

Physician Name _____ Telephone/email _____

Address _____ City _____ State ____ Postal Code _____

PROCEDURE FOR OPEN WATER CERTIFICATION

After your students have successfully completed their training and are proficient in the HSA Physical Performance Requirements, you may submit a Request for Certification following these procedures.

1. Fill out both sides of the Certification Request Form.
    a. Fill in all Student data, name, birth date, address, telephone, email & Physician's impression.

    b. List all training dives and the Open Water Training Location.

    c. Comments: In this section, list ANY condition that may be required for your student to dive safely, comfortably and with pleasure, such as special assistance or equipment modification.

    d. Course Standards Not Completed: This refers to LEVEL B and LEVEL C Performance Requirements that may be omitted or compensated for with assistance. If your student is unable to 'independently' complete any of the Performance Requirements required for LEVEL A Certification, list them by number designation such as I.C.23 [C-SPR].

    e. Use the Multilevel Certification System to determine IF they qualify as a LEVEL A, LEVEL B or LEVEL C Open Water Scuba Diver or Skin/Snorkel Diver.

    EXAMPLE: LEVEL B: I.C. 26 (donor) [B], II.C. 10 [B] & 21 (donor) [B]
    LEVEL C: I.C. 16 [C-SPR], II.C. 12 [C-SPR] & 29 [C-SPR]
    This Student will be certified as a LEVEL C Open Water Scuba Diver.

    ALL PERFORMANCE REQUIREMENTS NOT COMPLETED MUST BE LISTED ON THEIR CERTIFICATION REQUEST FORM

2. Have your Students sign-off the HSA Guidelines for Safe Diving and Multilevel Certification Forms, in a Classroom setting, and in the presents of an HSA Instructor. These Forms must be signed by the student, witnessed and dated. Give a copy to the student and keep the originals in your student files for seven (7) years.

3. NOTE: When a diver has been trained and certified they assume responsibilities to the environment, their dive buddies and themselves. As certified divers Instructors must let them go and trust they have been trained to be responsible divers. The HSA Guidelines for Safe Scuba Diving, or Skin/Snorkel Diving, and Multilevel Certification forms help ensure they clearly understand these responsibilities.

4. Keep in your files for 7 years.
    a. Their Certification Request Form
    b. HSA Guidelines For Safe Diving
    c. Multilevel Certification Form
    d. Participant's Information Form
    e. Medical History Form
    f. Activities Registration Form
    g. Inherent Hazards & Risks of Diving Form
    h. Liability & Express Assumption of Risk Agreement

5. Academic Requirements
    a. Meet or exceed the Academic Standard used in your current academic program required by your primary Diver Training Agency, such as PADI or NAUI Diver Training Agencies.
    b. For students with intellectual disabilities see HSA Minimum Academic Requirements in Standards & Procedures.
    c. Also include 'Special Considerations in Classroom Materials' found in the Academics section of the HSA Instructor Manual. And, in a classroom setting, complete the HSA Activities Registration, Hazards & Risks of Diving, Liability & Express Assumption of Risk, Medical History, Guidelines for Safe Diving, and Multilevel Certification forms.

6. Student Registration
    a. Online registration is the most efficient way to register your student. As soon as your student is registered our webmaster is notified and the new diver's c-card & diploma are created and shipped to them within 5 days.
    b. Go to the HSA Website, www.hsascuba.com , and login. In the Quick Links box on the right click-on 'Register New Member' and follow the instructions. If you have problems contact Jim at hsa@hsascuba.com
    c. You can pay Registration Fees when registering new members or buy 'Registration Credits' in advance from the HSA Store. The HSA Store is in the 'Training Materials' dropdown menu, upper right.
    d. Your Student's C-card and Diploma will be sent to the new diver, unless otherwise instructed.

7. One does NOT have to have a disability to receive the internationally recognized HSA Open Water Scuba Diver Certification.

8. HSA Certification Benefits: Their Lifetime Membership, with no additional fees, connects them with the International Community of HSA Instructors, Dive Buddies & Scuba Divers. HSA Certified Divers are placed in our active membership file and will receive regular emails covering HSA news, and invitations to participate in all HSA activities, diving and travel opportunities, conventions and additional training.

[ ] OPEN WATER SCUBA DIVER
[ ] JUNIOR SCUBA DIVER
[ ] ADVANCED SCUBA DIVER (OWSD # _____)
[ ] SKIN DIVER/SNORKELER

HSA TRAINING SUMMARY FORM

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____

ADDRESS _____

CITY/STATE/PROVINCE _____ POSTAL CODE _____

COUNTRY _____ TELEPHONE _____ EMAIL _____

MEDICAL EXAM: YES _____ NO _____ DATE _____ / _____ / _____

PHYSICIAN'S IMPRESSION _____

INSTRUCTOR'S NAME _____ HSA MEMBER NUMBER _____

ADDRESS _____ CITY _____ STATE/PROVINCE _____

COUNTRY _____ POSTAL CODE _____

TELEPHONE _____ EMAIL _____ WEBSITE _____

This is to certify that the above named student has satisfactorily completed all academic and confined water training required by HSA Standards. The student has also completed these Open Water SCUBA dives and skill evaluation and is ready to be certified as an HSA Scuba Diver.

	DATE	LOCATION	DEPTH	DIVE TIME
1				
2				
3				
4				
5				

OPEN WATER TRAINING LOCATION: _____

COMMENTS: _____

COURSE STANDARDS NOT COMPLETED: _____

CERTIFICATION LEVEL: A [ ] B [ ] C [ ] COURSE COMPLETION DATE: _____ / _____ / _____

_____ DATE SIGNED: _____ / _____ / _____
INSTRUCTORS SIGNATURE

HSA MARINE LIFE IDENTIFICATION

Open Water [ ] Advanced [ ]

MARINE LIFE IDENTIFICATION - ONE

Common name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____ Color and Patterns: _____

Environment (where it lives): _____

MARINE LIFE IDENTIFICATION - TWO

Common name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____ Color and Patterns: _____

Environment (where it lives): _____

MARINE LIFE IDENTIFICATION – THREE

Common name: _____ Scientific Name: _____

Size: _____inches/cm Shape: _____ Color and Patterns: _____

Environment (where it lives): _____

MARINE LIFE IDENTIFICATION – FOUR

Common name: _____ Scientific Name: _____

Size: _____inches/cm Shape: _____ Color and Patterns: _____

Environment (where it lives): _____

MARINE LIFE IDENTIFICATION – FIVE

Common name: _____ Scientific Name: _____

Size: _____ inches/cm Shape: _____ Color and Patterns: _____

Environment (where it lives): _____

HSA GUIDELINES FOR SAFE SCUBA DIVING

These guidelines are to be read, understood and signed-off by each student at the end of their training. Each student will receive a copy. The signed the original copy for each student must be kept in the instructor's files for a minimum of seven years.

As a student of SCUBA Diving taught by an HSA Trained Instructor, you have received the best training available in the industry today. HSA wants to do our best to insure that you will have many years of safe, comfortable and enjoyable SCUBA DIVING. So take your time and read each of the GUIDELINES FOR SAFE DIVING, and when you are sure that you UNDERSTAND each guideline, place your initial in the space provided. If you have any questions, be sure to ask YOUR instructor, who will be happy to answer them.

1. Maintain good mental and physical fitness for diving. Dive only when feeling well. Never dive while under the influence of alcohol, drugs or medication. Get a regular, yearly medical examination for diving.

   Initials: _____

2. Stay proficient in diving skills, log your dives and attempt to make at least twelve (12) dives per year. Strive to increase your diving skills through continuing education and review them in a controlled environment (a pool) after inactivity in diving.

   Initials: _____

3. Use correct, complete, well-maintained equipment with which you are familiar and inspect it for correct fit and function prior to each dive. Always use a buoyancy control device equipped with a low pressure inflation system, a submersible pressure gauge, alternate air source and depth gauge when SCUBA diving. The use of a compass is highly recommended. Do not loan your equipment to a non-certified diver.

   Initials: _____

4. Know the limitations of yourself, your dive buddy(ies) and your equipment and spend time discussing your diving needs with a new dive buddy(ies). Always buddy dive and know each other's equipment.

   Initials: _____

5. Always plan your dive and dive your plan. Discuss dive duration, hand signals, emergency procedures such as sharing air and the location and use of your alternate air sources. If separated from your buddy search for 1 minute, then return to the surface.

   Initials: _____

6. Dive only according to "YOUR LEVEL" of certification. As a Level "A" diver you will dive with ONE dive buddy certified Open Water Level "A" or above. As a Level "B" diver you will dive with TWO dive buddies certified Open Water Level "A" or above. And as a Level "C" diver you will dive with TWO dive buddies, one certified, at a minimum, as a Rescue Diver. In most cases an Instructor, Assistant Instructor, Dive Master or HSA Open Water Dive Buddy. The other buddy will be certified Open Water Level "A" or above.

   Initials: _____

7. Know your diving location. Use good judgment and common sense in planning each dive, set moderate limits for depth and time in the water and avoid dangerous places or poor diving conditions. Only engage in diving activities consistent with your training and experience. **Do not exceed the depth you are trained in without further training.**

   Initials: _____

8. Be prepared to ditch your weight belt, make an emergency ascent, clear your mask or mouthpiece or take any other emergency action needed. Discuss emergency procedures with your dive buddy(ies) before each dive. In an emergency, STOP–THINK–GET CONTROL, then take action.

   Initials: _____

9. Control Your Buoyancy! Adjust weighting for neutral buoyancy, maintain neutral buoyancy during descent, while underwater and during ascent. Be buoyant at the surface and keep the regulator mouthpiece in your mouth until you are buoyant. Make sure weights are clear for easy removal to establish buoyancy at the surface or underwater, in case of distress while diving.

   Initials: _____

10. Get out of the water if you are cold, tired, injured, low on air or in anyway not feeling well. If any abnormality persists after diving, get medical attention.

    Initials: _____

10. Never breath-hold or skip-breathe when breathing compressed air, breathe continuously throughout a SCUBA dive. Avoid hyperventilation before a skin dive. Do not overexert, and know your limits. Be sure to equalize pressure early and often during descents.

    Initials: _____

11. Be proficient in dive table and/or dive computer use, decompression and emergency procedures. Make all dives no-decompression dives and always allow a margin of safety by staying well within the no-decompression limits. Have a means to monitor depth and time while underwater and ascend at a rate of 30 feet /9m per minute or slower. Always decompress at 15 ft/5m for three (3) minutes after every scuba dive. Allow at least 24 hours after a dive before flying or increasing your altitude.

    Initials: _____

12. Use a boat or float as a surface station whenever this will increase the safety of the dive. Fly the diver-down flag and surface close to the boat or surface station, while watching and listening for possible hazards. Never use SCUBA to skim just under the surface, you cannot be seen by passing boats or other divers.

    Initials: _____

13. Be aware of current changes during the dive, use natural clues such as seaweed or look for current lines trailed behind the boat at the surface. Always plan your dive into the current, then at the end of the dive you can return with the current.

    Initials: _____

14. When boat diving, select a licensed boat that is fully equipped with the required safety equipment and Oxygen. Only sign up for trip destinations that are consistent with your training and experience. Plan your dive to end with a sufficient reserve of air to return to the boat while still under water.

    Initials: _____

15. Beware of sunburn even on overcast days, abrasions and tissue breakdown on hard surfaces while diving and after being in the water.

    Initials: _____

16. As an HSA Open Water Dive Buddy for someone who is dependent upon you for diving, always be certain that you and your equipment are fit for diving. Never buddy assist a diver if for any reason you are uncomfortable with your equipment, yourself or the diver. Always use the three (3) person buddy system when diving with a Level B or Level C diver. Thoroughly understand the equipment and capabilities of both the diver you are assisting and your secondary dive buddy. Plan your dive to be safe and comfortable for EVERY member of the dive team.

    Initials: _____

I have read and understand the above HSA GUIDELINES FOR SAFE DIVING and agree to always conduct my diving according to them.

_____
Diver's Name Print

_____
Diver's Signature Date

_____
Witness's Name Print

_____
Witness's Signature Date

_____
Parent or Guardian's Name Print

_____
Parent or Guardian's Signature Date

HSA OPEN WATER SCUBA DIVER MULTILEVEL CERTIFICATION

LEVEL A OPEN WATER SCUBA DIVER
REQUIREMENTS: The student must successfully perform all HSA Open Water Course Standards.
DIVING PROCEDURES: Always dive with at least one (1) dive buddy who is certified as an Open Water SCUBA diver Level A or above, by a recognized diver training agency, and follow all HSA Guidelines for safe diving. ***It is your responsibility to inform your dive buddies of your special needs and limitations.***

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL B OPEN WATER SCUBA DIVER
REQUIREMENTS: The student must successfully perform all HSA Open Water Course Standards, except for those Standards marked Level B.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies who are certified as Open Water SCUBA divers Level A or above and follow all HSA Guidelines for safe diving. The THIRD MEMBER of your buddy team is NOT there to help you dive; they are there to assist your other dive buddy if they have an emergency. ***It is your responsibility to inform your dive buddies of your special needs and limitations.***

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL C OPEN WATER SCUBA DIVER
REQUIREMENTS: The student must independently perform all [R] required HSA Open Water Course Standards except for Standards marked Level C-SPR. C-SPR Standards must be performed with assistance.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies. A Primary Dive Buddy who is certified at a minimum as a Rescue Diver. It is highly advised that this buddy is an HSA Instructor, Assistant Instructor, Dive Master or Dive Buddy. And a Second Dive Buddy certified Open Water SCUBA Diver Level A or above. Follow all HSA Guidelines for safe diving. The THIRD MEMBER of your buddy team is NOT there to help you dive; they are there to assist your other dive buddy if they have an emergency. ***It is your responsibility to inform your dive buddies of your special needs and limitations.***

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL C WITH 'CONDITIONS'
REQUIREMENTS: The student must independently perform all [R]required HSA Open Water Course Standards except for Standards marked Level C-SPR. C-SPR Standards must be performed with assistance.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies. A Primary Dive Buddy that is an adult of the parents' or legal guardians' choice, who knows them well and can predict their reactions. This buddy must be certified, at a minimum, as a Rescue Diver. It is highly advised that this buddy is an HSA Instructor, Assistant Instructor, Dive Master or Dive Buddy. And a Second Dive Buddy certified Open Water SCUBA Diver Level A or above. Follow all HSA Guidelines for safe diving. The THIRD MEMBER of the buddy team is NOT there to help them dive; they are there to assist the other dive buddy if they have an emergency. ***It is your responsibility to inform the dive buddies of any special needs and limitations.***

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

I have read and understand the above definition of my Level of certification and agree to dive according to the DIVING PROCEDURES of that certification level. My Certification Level is: _____

_____	_____	_____
Diver's Name Print	Diver's Signature	Date
_____	_____	_____
Witness's Name Print	Witness's Signature	Date
_____	_____	_____
Parent or Guardian's Name Print	Parent or Guardian's Signature	Date

HSA Guidelines for Safe Skin & Snorkel Diving

These guidelines are to be read, understood and signed-off by each student at the end of their training. Each student will receive a copy. The signed original copy for each student must be kept in the instructor's files for a minimum of seven (7) years.

As a student of Skin Diving / Snorkeling taught by an HSA Trained Instructor /Assistant Instructor, you have received the best training available in the industry today. HSA wants to do our best to insure that you will have many years of safe, comfortable and enjoyable Skin Diving / Snorkeling. So take your time and read each of the GUIDELINES FOR SAFE SKIN DIVING/ SNORKELING, and when you are sure that you UNDERSTAND each guideline, place your initial in the space provided. If you have any questions, be sure to ask YOUR instructor /Assistant Instructor, who will be happy to answer them.

1. Maintain good mental and physical fitness for diving. Dive only when feeling well. Never dive while under the influence of alcohol, drugs or medication. Get a regular, yearly medical examination for diving.
   Initials: _____

2. Stay proficient in Skin Diving / Snorkeling skills. Attempt to make at least six (6) Skin Dives or/ Snorkel Dives per year. Strive to increase your Skin Diving / Snorkeling skills through continuing education. Review your skills in a controlled environment (a pool) after inactivity in Skin Diving / Snorkeling.
   Initials: _____

3. Use correct, complete, well maintained equipment with which you are familiar and inspect it for correct fit and function prior to each dive.
   Initials: _____

4. Know your limitations, those of your dive buddy(ies) and your equipment. Spend time discussing your diving needs with any new dive buddy(ies). Always dive with a buddy and know each other's equipment.
   Initials: _____

5. Dive only according to "YOUR LEVEL" of certification, that is, as a Level "A" Skin Diver you will dive with at least ONE (1) dive buddy who is certified as a skin diver, Level A or above, by a recognized diver training agency. As a Level "B" Snorkeler you will dive with at least TWO (2) dive buddies who are certified, Level "A" or above. As a Level "C" Snorkeler you will dive with at least TWO (2) dive buddies, one certified, at a minimum, as a Rescue Diver by a recognized diver training agency and equipped as a Snorkeler. It is highly advised that this buddy receives training from the HSA as an Instructor, Assistant Instructor, Dive Master or HSA Open Water Dive Buddy. The second buddy will be certified as a skin diver, Level "A" or above, by a recognized diver training agency.
   Initials: _____

6. Know your diving location. Use good judgment and common sense in planning each dive. Set moderate limits for depth and time in the water and avoid dangerous places or poor diving conditions. Only engage in Skin Diving and/or Snorkeling activities consistent with your training and experience.
   Initials: _____

7. Discuss emergency procedures with your dive buddy(ies) before each dive. In an emergency, STOP – THINK – GET CONTROL, then take action.
   Initials: _____

8. Get out of the water if you are cold, tired, injured or in any way not feeling well. If any abnormality persists after diving, get medical attention.
   Initials: _____

9. Avoid hyperventilation before a skin dive. Do not overexert, and know your limits. Be sure to equalize pressure early and often during descents.
   Initials: _____

10. Use a boat or float as a surface station whenever this will increase the safety of the dive. Fly the diver-down flag and surface/snorkel close to the boat or surface station while watching & listening for possible hazards.
    Initials: _____

11. Be aware of current changes during the dive, use natural clues such as seaweed or look for current lines trailed behind the boat at the surface. Always plan your dive into the current, end of dive return with current.
    Initials: _____

12. When boat diving, select a licensed boat that is fully equipped with the required safety equipment; and Oxygen. Only sign up for trip destinations that are consistent with your training and experience.
    Initials: _____

13. Beware of sunburn even on overcast days, abrasions and tissue breakdown on hard surfaces while skin diving / snorkeling and after being in the water.
    Initials: _____

I have read and understand the above HSA GUIDELINES FOR SAFE SKIN DIVING / SNORKELING and agree to always conduct my diving according to them.

_____
Participant's Name Print

_____
Participant's Signature Date

_____
Witness's Name Print

_____
Witness's Signature Date

_____
Parent or Guardian's Name Print

_____
Parent or Guardian's Signature Date

HSA SKIN/SNORKEL DIVER MULTILEVEL CERTIFICATION

LEVEL A OPEN WATER SKIN DIVER
REQUIREMENTS: The student must successfully perform all HSA Skin/Snorkel Diver Course Standards.
DIVING PROCEDURES: Always dive with at least one (1) dive buddy who is certified as an Open Water Skin Diver Level A or above, by a recognized diver training agency, and follow all HSA Guidelines for safe Skin diving. It is your responsibility to inform your dive buddies of your special needs and limitations.

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL B OPEN WATER SKIN DIVER
REQUIREMENTS: The student must successfully perform all HSA Open Water Skin/Snorkel Diver Course Standards, except for those Standards marked Level B.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies who are certified as Open Water Skin divers Level A or above and follow all HSA Guidelines for safe skin/snorkel diving. The THIRD MEMBER of your buddy team is NOT there to help you dive; they are there to assist your other dive buddy if they have an emergency. It is your responsibility to inform your dive buddies of your special needs and limitations.

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL C OPEN WATER SNORKEL DIVER
REQUIREMENTS: The student must independently perform all [R]equired HSA Open Water Skin/Snorkel Diver Course Standards except for Standards marked Level C-SPR. C-SPR Standards must be performed with assistance.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies. A Primary Dive Buddy who is certified at a minimum as a Rescue Diver equipped as a skin diver. It is highly advised that this buddy is an HSA Instructor, Assistant Instructor, Dive Master or Dive Buddy. And a Second Dive Buddy certified Open Water Skin Diver Level A or above. Follow all HSA Guidelines for safe skin/snorkel diving.
It is your responsibility to inform your dive buddies of your special needs and limitations.

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

LEVEL C WITH 'CONDITIONS'
REQUIREMENTS: The student must independently perform all [R]equired HSA Open Water Skin/Snorkel Diver Course Standards except for Standards marked Level C-SPR. C-SPR Standards must be performed with assistance.
DIVING PROCEDURES: Always dive with at least two (2) dive buddies. A Primary Dive Buddy that is an adult of the parents' or legal guardians' choice, who knows them well and can predict their reactions. This buddy must be certified, at a minimum, as a Rescue Diver. It is highly advised that this buddy is an HSA Instructor, Assistant Instructor, Dive Master or Dive Buddy. And a Second Dive Buddy certified Open Water Skin Diver Level A or above. Follow all HSA Guidelines for safe skin/snorkel diving.
It is your responsibility to inform the dive buddies of any special needs and limitations.

DIVERS INITIALS: _____ PARENT OR GUARDIANS INITIALS: _____

I have read and understand the above definition of my Level of certification and agree to dive according to the DIVING PROCEDURES of that certification level. My Certification Level is: _____

Diver's Name Print	Diver's Signature	Date
Witness's Name Print	Witness's Signature	Date
Parent or Guardian's Name	Parent or Guardian's Signature	Date

HSA STUDENT REFERRAL

Students Name _____ Date of Birth _____

Address _____ City _____ State _____ Zip _____

Country _____ Tel: _____ email: _____

Instructors Name _____ HSA Instructor number _____

Signature _____ Tel: _____ email: _____

REFERRAL COMMENTS

Please indicate standards not completed, and include comments on student performance.

ACADEMIC REQUIREMENTS Complete [ ] Incomplete [ ] Comments: _____

CONFINED WATER LESSONS

Lesson 1: Complete [ ] Standards not completed _____

Comments _____

Lesson 2: Complete [ ] Standards not completed _____

Comments _____

Lesson 3: Complete [ ] Standards not completed _____

Comments _____

Lesson 4: Complete [ ] Standards not completed _____

Comments _____

OPEN WATER DIVE LESSONS

Lesson 1: Complete [ ] Standards not completed _____

Comments _____

Lesson 2: Complete [ ] Standards not completed _____

Comments _____

Lesson 3: Complete [ ] Standards not completed _____

Comments _____

Lesson 4: Complete [ ] Standards not completed _____

Comments _____

Lesson 5: Complete [ ] Standards not completed _____

Comments _____

STUDENT INSTRUCTOR RATIOS & PRICE STRUCTURING

STUDENT/INSTRUCTOR RATIO

A good assistant instructor is your first consideration, when planning to teach an HSA class. Be flexible when determining Student/Instructor Ratios. Assess each class grouping on its own characteristics. The deciding factor is the level of attention each student needs.
For example:

a. You have a class of 8 students, 2 of them are paraplegic that take longer to master their skills but do not need your undivided attention. In this case the Student/Instructor Ratio could be normal.
b. You have a class of 4 students; 1 is quadriplegic requiring your undivided attention, 1 is paraplegic, 2 are regular students. In this case, because of your quad student, you would need either a Dive Master or another Instructor to assist you. It is highly recommended that these assistants are HSA Certified.

PRICE STRUCTURING FOR OPEN WATER SCUBA COURSE

If your student(s) can complete the HSA Course in the same time as your normal scuba course, then the price would be the same as your regular course. The academics, in most cases, will require the same amount of time because the material is the same.

The Confined and Open Water will often require additional sessions. A fair way to adjust the price is to charge the same as you would for a make-up Confined and/or Open Water session, for each additional session.

If, for example you charge:

$280.00 for an Open Water Scuba Course
$50.00 per ‘make-up’ pool session - for students that are absent for a course pool session
$75.00 per ‘make-up’ Open Water dive - for students that are absent for an open water training dive

HSA Class has required 3 additional pool sessions & an additional Open Water dive.
Then, The HSA Course would cost:

$280.00	Basic Class
$150.00	3 additional Pool sessions
$75.00	1 additional Open Water session
$505.00	Total

Explain your price structure when your student is enrolling, so there will be no surprises.

HSA DIVE BUDDY COURSE (DBC)
Requirements

This specialty certification is for OPEN WATER SCUBA DIVERS, or above, who wish to know and understand more about physical disabilities. They will learn what disabilities are, how they affect people, and how to safely and effectively assist, travel and SCUBA dive with people who have a wide range of disabilities.

PREREQUISITS

a. Certified Open Water Scuba Diver, or above, by a recognized Diver Training Agency.
b. Logged a minimum of twenty (20) scuba dives within two (2) years prior to the starting date of the Dive Buddy Course.
c. Minimum age 15 years old.
d. Successfully challenge HSA Air Sharing and Life Saving Skills or equivalent.

QUALIFICATION OF GRADUATES

When successfully completed, course graduates will be considered competent to dive with and assist in Confined and Open water Skin and Scuba diving activities with Certified divers with disabilities, providing that:

a. Diving activities approximate those in which the Dive Buddy was trained.
b. Dive site environment & conditions resemble those encountered during training.
c. Dive Buddy complies with all HSA recommended safe diving procedures.

ACADEMIC REQUIREMENTS – KEEP ALL STUDENT RECORDS FOR 7 YEARS

a. Complete the academic lectures and exam for the HSA Dive Buddy Course.
b. Dive Buddy Manual Required for certification.
c. Lectures, Water work, Forms and Exam are included in the Dive Buddy Manual.

AQUATIC REQUIREMENTS

a. Complete the Confined and Open Water Exercises.
b. Instructor Manual, Standards & Procedures - Pages 75-82
c. Dive Buddy Manual - Pages 53-60

RENEW Open Water Dive Buddies must renew yearly

a. Complete 12 logged Scuba Dives in the preceding twelve (12) months.
b. Membership Renewal Fee
c. Renew online at: www.hsascuba.com

HSA DIVE BUDDY COURSE STANDARDS

a. Instructor Manual Standards & Procedures – Page 8

Handicapped Scuba Association International
DBC PowerPoint Presentation Syllabus

Total time 6 hours plus breaks, discussion &exam

Academics: Slides 1 - 27	*20 minutes*	*pages 1-4*
[Enrollment can be done before the course begins, save 30 minutes]		
HSA Orientation	*(15 slides)*	*pages 1-2*
HSA Website	*(3 slides)*	*www.hsascuba.com*
DBC Course Overview	*(6 slides)*	*pages 3-4*
Academics: Slides 28-110	*70 minutes*	*pages 5-18*
Adjustment to a Disability	*(12 slides)*	*pages 5*
PTSD	*(14 slides)*	*pages 7*
Shaping Relationship	*(4 slides)*	*pages 9*
Spinal Cord Injuries	*(52 slides)*	*pages 10-18*
Film Freedom in Depth	*30 minutes (film is 20 minutes)*	
Slides 111-112		
Academics: Slides 113-191	*45 minutes*	*pages 19-29*
Traumatic Brain Injury (TBI)	*(9 slides)*	*pages 19*
Developmental Disabilities	*(9 slides)*	*pages 20*
Autism Spectrum Disorder (ASD)	*(6 slides)*	*pages 21*
Cerebral Palsy	*(10 slides)*	*pages 22*
Amputee	*(7 slides)*	*pages 23*
Hearing Impaired	*(23 slides)*	*pages 24-26*
Sight Impaired	*(16 slides)*	*pages 27-29*
Academics: Slides 192-216	*20 minutes*	*pages 30-32*
Multiple Sclerosis	*(8 slides)*	*pages 30*
Muscular Dystrophy	*(7 slides)*	*pages 31*
Cancer	*(10 slides)*	*pages 32*
Film to Fly in Freedom	*30 minutes (film is 20minutes)*	
Slides 217-218		
Academics: Slides 219-233	*20 minutes*	*pages 33*
Physical Performance Requirements		
Multi-level Certification	*(10 slides)*	*pages 33*
Americans with Disability Act	*(3 slides)*	*pages 75-76*

Academics: Slides 234-253	*15 minutes*	*page 34-36*
In-Water Training		
Donning Wetsuits	*(11 slides)*	*page 35*
Equipment	*(8 slides)*	*page 35*
Regulator Lanyards, Mouthpieces	*(4 slides)*	*page 36*
Academics: Slides 254-287	*30 minutes*	*pages 35-40*
Entries	*(3 slides)*	*pages 36-37*
Surface Skills	*(13 slides)*	*pages 37-38*
Descents & Ascents	*(6 slides)*	*pages 39*
Unassisted & Assisted		
CESA & Share Air Ascent	*(6 slides)*	*pages 39-40*
Swimming	*(3 slides)*	*pages 40*
Unassisted & Assisted		
Boat Exits	*(4 slides)*	*pages 52*
Unassisted & Assisted		
Academics: Slides 288-332	*30 minutes*	*pages 40-52*
Gas Laws & Dive Tables	*(5 slides)*	*pages 41*
Sun Protection & Hydration	*(8 slides)*	*pages 43*
Accessibility Considerations		
Facilities	*(16 slides)*	*pages 46-48*
Overcoming Barriers	*(7 slides)*	*pages 49*
Accessible Boat	*(5 slides)*	*pages 50*
EXAM	*2 hours*	*pages 89-100*

The Dive Buddy Exam can be taken any time after completion of the Lectures. Time includes correcting the exam in class. Exam is not included in the `Total time' for the PowerPoint Presentation.

NOTE: *Page numbers are for the Dive Buddy Manual.*

NOTE: *Dive Buddy Manual page numbers are on the PowerPoint Presentation slides. The DBC participants follow along in their Manual as you lecture from the PPP slides.*

NOTE: *HSA Instructors on Teaching Status can teach the HSA Dive Buddy Course & Certify HSA Dive Buddies.*

PROCEDURES FOR ACTIVITIES ENROLLMENT

Dive Buddy Course

Enrolling participants into HSA Dive Buddy Course requires the follow forms to be completed. Keep all of these forms in the Participant's records for seven (7) years. Dive Buddy Candidates forms are in the Dive Buddy Manual (pages 61 - 67) and on the HSA Download page DBC Enrollment Forms.

1. HSA DIVE BUDDY COURSE RECORD: This is an important document.
    a. Top, have your Dive Buddy Candidates fill in the Participant's information and Sign it on Participants Signature line.
    b. Dive Buddy Course Prerequisites (middle)
        i. Ensure the Dive Buddy Candidates have fulfilled all of the prerequisites
        ii. HSA Air Sharing and Life Saving Skills, confirm they have completed these skills with your Instructor Initial.
    c. Training Summary (bottom). At the end of the Dive Buddy Course fill in all the information asked for, print your name and member number then Sign and date it.
2. HSA GUIDELINES FOR SAFE DIVING: Have your Dive Buddy Candidates read and initial each of the guidelines, then sign and date it. This is an important 'refresher' before they start training.
3. HSA INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES FORM: Have your dive buddy candidates read and sign this form PRIOR to reading and signing the HSA Liability and Express Assumption Risk form. The purpose of this form is to insure the candidate understands the risks they are accepting when they engage in diving activities.
4. HSA LIABILITY AND EXPRESS ASSUMPTION OF RISK FORM: Have your dive buddy candidate read it carefully, fill in all the blanks and sign it.
5. HSA MEDICAL HISTORY FORM: Have your dive buddy candidate fill in personal information and answer the Medical History Questionnaire. If their response is positive to any of the conditions listed they are then required to have a physical examination and be approved for diving by a Medical Doctor.
    a. MEDICAL EXAMINATION: If the Dive Buddy Candidate has had a Medical Examination within two years of the finishing date of the Dive Buddy Course they are enrolled in, that serves as a valid medical examination and approval for diving.

PROCEDURES FOR REGISTERING NEW DIVE BUDDY

Go to the HSA Website, www.hsascuba.com, and login. In the Quick Links box on the right click-on 'Register New Dive Buddy' and follow the instructions. If you have problems contact Jim Gatacre, at hsa@hsascuba.com .

You must purchase 1 Dive Buddy Kit (Manual), paper copy or electronic, for each Dive Buddy Candidate. You will be given a 'manual credit' for each manual that will allow you to register your Dive Buddy candidates.

There is 'also' a Registration fee for each candidate that you can pay when you register them, or you can purchase 'registration credits' in advance from the HSA Store.

HSA DIVE BUDDY LEADERSHIP COURSE (DBL)

For HSA Dive Buddies that continue their underwater education and are certified at a leadership level, Instructor, Assistant Instructor or Dive Master, they can crossover to HSA Instructor, AI or DM with the following additional HSA Instructor training conducted by an HSA Course Director in good standing.

1. Leadership (DBL) training must be conducted by an HSA Course Director in good standing.

2. Required materials: Current Instructor Manual & OW Training Slates

3. Introduce Instructor Manual: show them these 3 sections of the manual
   a. Academic section: Table of Content, Disability Types, Training, Standards & Certification, Equipment, Accessibility, etc.
   b. Appendices: Organizations, Vendors, Volunteer Protection Act, Letter Prime Minister of Canada, etc.
   c. Standards & Procedures section: Table of Content, Course Standards, Physical Performance Requirements, Forms, Exams & Answers, Introduction to Scuba, etc.

4. Academic section additional training:
   a. Seizure Disorders.
   b. History & Development HSA Physical Performance Standards.
   c. Criteria for Certification.
   d. ***Note***: Go to Standards & Procedures, to teach HSA Course Standards, Physical Performance Requirements, Advanced Course, Dive Buddy Course, etc.

5. Standards & Procedures section additional training:
   a. Course Standards
   b. Physical Performance Requirements Explanation
   c. Physical Performance Requirements & Confined & Open Water Lesson Plans
   d. Explain the Open Water Scuba Diver Training Slates & Dive Buddy Training Slates
   e. Procedures for Activities Enrollment
   f. Procedures for Open Water Certification
   g. Students/Instructor Ratio and Price Structuring
   h. HSA Advanced Scuba Diver & Dive Buddy Courses
   i. HSA Introduction to Scuba

6. Exam: HSA Instructor Exam, open book & open discussion.

7. Confined Water Exercises. Evaluated by HSA Course Director.
   a. Paraplegic diver skills; set-up, enter water, swim on surface prone & on back, turn over at surface, get legs down. Underwater control descent, swim underwater breast stroke & sculling, perform CESA, rescue unconscious diver, tow & ventilate, exit water.
   b. Perform all quad exercises as able bodied buddy.
   c. These are minimum requirements. Course Directors' have the discretion, and responsibility, to have the candidate perform additional HSA ITC Confined and/or Open Water Exercises if they deem it necessary.

8. Register crossover candidate in HSA Instructor database. Requires purchase of Instructor Kit (Manual & Slates) and instructor registration fee.

HSA INTRODUCTION to SCUBA USERS GUIDE

(The Introduction to Scuba document takes 10 minutes to read.)

This HSA Introduction to Scuba document is what you already lecture on during your normal 'Discover Scuba' program. Additional topics address disabilities issues, which helps to insure the student is aware of possible injuries as a consequence of this activity.

Attached is the HSA's Introduction to Scuba, and Medical History, Liability Release, and Hazards & Risks forms.

To develop this document Gatacre spent 5 days at the Colorado VA Winter Games assisting HSA instructors (The Colorado Scuba Dudes) giving discover scuba for over 100 veterans with many different types of disabilities. During this time Gatacre wrote down everything instructors were teaching, and forgetting to teach, and back in the office he collated this information into the HSA Introduction to Scuba.

Then HSA conducted three scuba experiences at the Navy Hospital in San Diego and continued to refine the document. There were two issues we had to address;

1. The vets wanted to know if this was just a scuba experience or were they going to learn something they could apply to becoming a scuba diver.
    a. So the HSA Introduction to Scuba is comprehensive in education. The students will 'read' what they will then 'listen' to and then 'do' during the discover scuba program. Read, listen and action is the most effective way to teach. Those who complete this training have demonstrated they are a good candidate for scuba training and have completed several HSA Physical Performance Requirements..
2. Some of the vets do not have physical disabilities but are suffering the consequences of being in combat. So we had to figure out how to fit them into the program.
    a. So included are methods for assisting people with physical disabilities so these vets could learn & do something that will help them cope with their combat related problems by helping others.

The Introduction to Scuba applicants will read the HSA Introduction to Scuba before you start training. It is a 10 minute read. At the beginning of the 'Introduction' you will have them complete these liability forms.

1. Prior to training the candidates must complete the following forms with a Scuba Diving Instructor present to answer questions;
    a. Activities Registration & Inherent Hazards & Risks Form
    b. Liability Release & Express Assumption of Risk Agreement
    c. Medical History Form

HSA INTRODUCTION TO SCUBA

Participant's Name _____ Location _____

2. Paper work, registration:
   a. Activities Registration & Inherent Hazards & Risks Form
   b. Liability Release & Assumption of Risk Agreement
   c. Medical History Form

3. Briefing

   This is an Introduction to Scuba so you only need to know a few basic rules, but these rules are IMPORTANT because you are breathing compressed air.

   a. Breathe: This is the first rule, and it is completely up to you. It is very easy, you just breathe all the time, but it is the MOST IMPORTANT thing you will have to do. If you hold your breath you can rupture your lungs, which is VERY SERIOUS!

   b. Ear clearing: Your ears may experience some pressure, or even hurt, when you descend underwater. This is normal, and you have probably already experienced this pressure in your ears if you have dove underwater, flown in an airplane, or driven in the mountains.

      What has happened is the pressure in your middle ear is not equal to the pressure that surrounds you so you must 'equalize' the pressure in your air spaces. This is commonly referred to as 'clearing your ears'.

      To 'clear your ears' simply pinch your nose and 'gently' blow until you feel them 'clear' and return to feeling normal. If you start clearing your ears when you begin to descend and intermittently clear them until you reach the bottom you will probably not have a problem. If your ears begin to hurt, STOP your descent and ascend a little until they 'clear', then continue your descent.

   c. Hand signals: Underwater we are unable to talk to each other, so we use a few simple hand signals.

      Okay: Forming a circle with your thumb & forefinger means either 'are you Okay?' or 'I am Okay'. For sight impaired divers a squeeze to your bicep asks 'Are you Okay?', and you will use the visual Okay sign to answer.

      Go up: Close your hand with the thumb pointing up means either 'go up' or 'I want to go up'. It does NOT mean Okay. For sight impaired divers pressure applied to the palm of your hand means 'go up', and you will use the visual up sign to answer.

      Uncomfortable: For all divers holding your hand palm down with your fingers together and wobbling it from side to side means 'I'm uncomfortable'.

   d. Sun Screen: Wear sunscreen, you will burn easier around water even if it is overcast!

   e. Protective clothing: For Spinal Cord Injuries (SCI) & Amputees. Keep your legs and feet covered. Pool and open water environments have hard and abrasive surfaces that can cause abrasions and tissue breakdown for people with reduced circulation caused by SCI or residual limb scar tissue.

4. Equipment & Use

We are going to give you a brief explanation of the equipment you will be using so we can talk to each other about it. Sight impaired divers use your tactile senses on the equipment during the explanation. You will be using a Face Mask, Weights Buoyancy Control Device (BCD), Scuba tank, and Regulator to breathe from.

a. Dive Mask: A diver uses a dive mask for two reasons. The first and most obvious reason is to keep water and chlorine out of their eyes so they can see clearly. The other reason is to keep water out of their nostrils. When water gets in your nostrils, your biology tells you to STOP breathing, and remember we have to breathe all the time on SCUBA! You can breathe with water in your nostrils, but most people have to learn how.

   Dive Mask Selection: You need a proper fitting mask so it won't leak. To select the right mask for you, take the mask strap and move it out of the way, place the mask on your face, tip your head back, look at the sky and inhale through your nose then let go of the mask. The mask will stick to your face, listen for leaks and tip your head forward so you are looking straight ahead. The mask should stay on your face and not leak air. You may have to try several masks to find the one that fits you comfortably.
   Mask Defog: Dive Masks fog-up for the same reason your car windows do on a cold day. We defog our masks with either our spit, or with defog solution.

b. Weights: We are approximately the same density as water, so when we relax we float and so we must use weights to sink. Weight: _____ lbs.

c. Scuba Tanks: Tall tanks such as the Aluminum 80 tank are best for those who have weakened trunk strength from spinal cord injury or other sources. The taller tanks provide stability when sitting with your equipment on and can be leaned on for comfortable support.

d. SCUBA: Self Contained Underwater Breathing Apparatus
   The SCUBA unit consists of; Scuba Tank, Regulator and Console with pressure gauge, depth gauge and compass, low-pressure inflator hose, and Buoyancy Control Device (BCD).

   Scuba Tank: Inside the tank is 'regular air' that has been filtered and compressed to fit inside the tank. Tanks usually have 3000 pounds per square inch (psi) pressure inside when it is full. The air inside is dry, so *you may experience dry mouth* while breathing.

   Pressure gauge: This pressure gauge tells you how much air is inside your tank. Look at your pressure gauge, how many psi do you have? When your tank pressure gets down to 500 psi, you are required to ascend to the surface. This is so you will have plenty of air while swimming to the surface, and for anything you may need to do at the surface before you are positively buoyant.

   Depth gauge: This gauge tells you how deep you are in feet.

   Compass: This is what you use to navigate underwater, just as you do on land.

Regulator: Attached to your tank is your Regulator 1st stage, it 'regulates' the compressed air inside your tank so you can breathe it. The Regulator 2nd stage is what you breathe from. To use it simply place the mouth piece into your mouth, hold the little bumps gently with your teeth, and *keep the flange inside your lips on the outside of your gums*. Breathe through it a few times, slow deep breaths. This is what you do the entire time you are underwater, breathe in and out, and never hold your breath.

Buoyancy Control Device (BCD): The BCD floats you in the upright position or on your back at the surface, and controls your buoyancy underwater. The weights sink you and your BCD 'floats' you underwater, this is what we mean when we say 'neutrally buoyant', you are floating underwater. Your BCD must *fit snugly* for it to work properly.
Your BCD is attached to your tank with the backpack and a low-pressure inflator hose, so all you have to do is press the inflator button to inflate it, and press the deflate valve button to deflate it. To deflate your BCD you must be upright in the water with the deflate valve higher than the top of the BCD, so *hold your inflator over your head and press the deflator button*.

Things move much slower in the water than on land, so there is a delay when we move. This means you must inflate and deflate your BCD in small increments to avoid going up or dropping down too fast. We will operate it for you until you see how it works.

5. This may seem like a lot to remember, but we are here to remind you, so you will have a safe comfortable experience. We can take care of everything, EXCEPT breathing, you must do that.

6. Water activity

   a. Transfer from your wheelchair: Be sure to tell those assisting your transfer what method you use, and then have them explain what they intend to do before they assist you.

   b. Assisted Transfer: ALWAYS instruct the assistants to use a two-person lift. It is safer for you and for those assisting you. One assistant will lift under the arms from the rear, while the other assistant lifts the legs from the front. Be certain to tell the assistants to lift your legs, not drag them, at the knee so your legs bend naturally over the assistants' hands or arm.

   c. Balance: ALWAYS tell those assisting you if have poor balance, and make certain that the assistants understand that you must be securely balanced, have support, or are lying down BEFORE they let go of you.

   d. Point of Entry don Scuba: Make certain there is padding, such as an exercise mat or towel, over the edge of the pool to protect your skin. Transfer onto padded point of entry and don Scuba equipment. Lie down & don your weight belt first. Sit up and put your arms through the BCD shoulder straps, fasten and adjust the cummerbund, buckles and shoulder straps. Always don equipment at the point of entry.

e. Assisted donning of Scuba: If you are receiving assistance donning your equipment, be certain to instruct your assistances to lay you down to don your weight belt, then sit you up to don your Scuba unit. For assistance donning your face mask have your assistant hold the mask still so you can place your face onto it, and then pull the mask strap into place. A neoprene mask strap makes this procedure much more comfortable.

f. Enter the Water: Put on your mask and inflate your BCD so that you float when you enter the water. Place the Regulator in your mouth and start breathing. Make a modified front roll into the water, twisting so you will land on your shoulder. Remember you have air in your mouth so you can breathe with your face in the water. If you need assistance your topside assistant will roll you gently into the water, holding on to your tank valve as long as possible, to an in-water assistant.

g. Water activity: Turn onto your back. If you need assistance your in-water assistant will turn you onto your back. Then remove your regulator and check your equipment, adjust weights, BCD fit, and mask. Keep you regulator in your mouth until you are on your back, floating and ***COMFORTABLE***.

h. Breathe without a mask: At the surface take off your dive mask, place your regulator in your mouth and begin breathing, IN THROUGH YOUR MOUTH - OUT THROUGH YOUR NOSE, and gradually submerge your nose underwater while continuing to breathe. Now get your entire head underwater while continuing to breathe in through your mouth - out through your nose. Continue to breathe with your head underwater for 2 minutes.

   Remember: When water enters our nostrils we have a biological response to stop breathing, and we know that we must breathe all the time, so this is a very important skill.

i. Descend at the shallow end: Remember while you are diving, you can always come up, you are not trapped underwater - the surface is just a few seconds away.

j. Recover and Clear your regulator: Underwater, RECOVER your regulator by reaching back with your right hand until you feel the bottom of your tank, then with a sweeping motion bring your hand to the surface. Your regulator will be hanging over your shoulder where you can easily recover it. CLEAR your regulator second stage by blowing through it. Note: You are going to change your breathing pattern. Start breathing IN THROUGH YOUR MOUTH - OUT THROUGH YOUR MOUTH; continue to practice this for 1 minute. This will keep your regulator clear of water, and your mask sealed to your face.

   If you have right arm involvement you can use 'gravity' by getting into the prone position and roll slightly to left. Your regulator second stage will be hanging down and you can recover it with your left hand.

k. Neutral buoyancy & swimming: Attain your neutral buoyancy - instructors will help you with this diving skill. We will then demonstrate how to swim using fins, breaststroke and sculling with your hands.

l. Sight impaired divers be sure to tell your assistant to use your name when addressing you, and to 'guide' you both at the surface and underwater. Be certain that they understand that 'pushing' you in the direction they want you to go is very disorienting.

m. Activities: Your instructor will direct these activities. After you become comfortable swimming underwater, go to the deep water and get into games such as turning somersaults and playing catch with underwater toys. This will teach you how objects and you move underwater.

n. Breathe from a free flowing regulator: On rare occasions regulators will free flow and the rush of air into your mouth can be disorienting. However it is easy to continue to breathe by controlling the rush of air into your mouth with your tongue and relax and let the overflow of air escape around your lips while continuing to breathe.

o. Share air stationary: using an octopus backup regulator as the receiver & donor of air.

p. Remove dive mask: while underwater and breathe on Scuba.

q. Ascend: Swim to the surface, either along the bottom to the shallow or swim to the surface in the deep end of the pool. DO NOT INFLATE YOUR BCD TO ASCEND, swim to the surface and when your head breaks the surface of the water inflate your BCD to attain positive buoyancy and ***COMFORT*** at the surface ***BEFORE*** removing your regulator.

r. Deep water Descent: Hold your Inflator over your head and let a little air out at a time and descend until you feel your hair floating on the surface, then exhale & you will descend slowly and be able to stop at any time by simply inhaling.

7. Exit the water:
Remember for SCI & Amputee divers be sure sensitive tissue is protected by using padding, such as an exercise mat or towel, over the edge of the pool at the point of exit.

a. Remove your weights - then Scuba unit. Exit the water, with assistance if necessary. SCI divers be certain your in-water assistant supports your legs during the exit.

b. Transfer to your wheelchair. Be sure to tell those assisting your transfer what method you use, and then have them explain what they intend to do before they assist you.

c. Assisted Transfer: ALWAYS instruct the assistants to use a two-person lift. It is safer for you and for those assisting you. One assistant will lift under the arms from the rear, while the other assistant lifts the legs from the front. Be certain to tell the assistants to lift your legs, not drag them, at the knee so your legs bend naturally over the assistants' hands or arm.

8. Skills Completed & Open Water Dive Prerequisites:
The following Performance Requirements must be performed 'comfortably', and to an 'adequate' level of proficiency, in confined water prior to open water dives.

1. Assemble and don SCUBA, with assistance if necessary.
I.C.1 [R] Date completed _____ Incomplete [ ]

2. Adjust Neutral Buoyancy at the surface, with 500 psi/50 bar tank pressure and lungs inflated.
Select weights for confined (fresh) water _____ pounds/kilos
I.C.4 [R] Date completed _____ Incomplete [ ]

3. Inflate BCD with low-pressure inflator both at the surface and underwater.
I.C.7 [C-SPR] Date completed _____ Incomplete [ ]

4. Remove, Defog, Replace and Clear the Dive Mask of water at the surface, with assistance if necessary.
I.C.5 [R] Date completed _____ Incomplete [ ]

5. Perform a Buoyancy Control Descent feet first in deep water and be able to stop and hover.
I.C.14 [C-SPR] Date completed _____ Incomplete [ ]

6. Equalize Pressure in all air spaces during both descents and ascents.
I.C.15 [C-SPR] Date completed _____ Incomplete [ ]

7. At the Surface and Underwater, Remove, Replace and Clear the Regulator Second Stage of water.
I.C.13 [R] (Control airways) Date completed _____ Incomplete [ ]
I.C.20 [R] (Clear Regulator) Date completed _____ Incomplete [ ]

8. At the Surface and Underwater, perform a Regulator Recovery from behind the right shoulder.
I.C.21 [C-SPR] Date completed _____ Incomplete [ ]

9. BREATHE for a minimum of 1 minute through a free flowing regulator without choking.
I.C.22 [R] Date completed _____ Incomplete [ ]

10. While underwater, completely remove the Dive Mask then breathe on SCUBA for at least two (2) minutes. Replace and clear the dive mask of water. Perform in shallow then deep water.
I.C.23 [C-SPR] Date completed _____ Incomplete [ ]

11. SHARE AIR: STATIONARY, using the octopus alternate air source for a minimum of two (2) minutes as the Donor of air, and two (2) minutes as the Receiver of air. Receiver secures the octopus regulator.
I.C.27 [C-SPR] (Unable to secure octopus)
Date completed _____ Incomplete [ ]

12. Ascend to the surface at a rate of 30 feet/9 meters per minute, while looking up and around.
I.C.36 [B] (looking up) [C-SPR] (assisted ascent)
Date completed _____ Incomplete [ ]

13. Perform a Buoyancy Controlled Ascent in deep water and be able to stop and hover.
I.C. 37 [C-SPR] Date completed _____ Incomplete [ ]

Participant's Name _____ Signature _____

I hereby certify that the above named student has completed the skills as designated in the above document.

Instructor's Name _____ Signature _____

HSA Member Number _____ Date Signed _____/_____/_____

HANDICAPPED SCUBA ASSOCIATION
ITC/DBC CONFINED WATER EXERCISES

MOBILITY IMPAIRED – PARAPLEGIC

1. POOLSIDE
a. Para Diver Sit in chair near point of entry. Bind ankles. Check leg bag.
b. Transfer to point of entry.
c. Lie on back, don weights.
d. Sit up with buddy assistance and DON SCUBA.
e. Able Bodied Buddy will act as a 'buddy' throughout all activities including putting on equipment, surface swimming and underwater performance requirements.

2. DIVER ENTRY
a. Para Diver Check equipment, inflate BCD.
b. Perform Modified Front Roll Entry (roll onto shoulder).
c. In water Para Diver roll onto back, no assistance. Check equipment.

3. SURFACE PERFORMANCE
a. Para Diver Swim pool length on back (Stroke & glide)
(This happens so Instructors & Dive Buddies need to experience it.)
b. 'Scoop Roll' Back to Prone with Regulator in mouth.
c. Swim pool length Prone (Stroke & glide).
d. Remove/replace weight belt, no assistance.

4. DIVER DESCENT
a. Para Diver Descend Tank First to bottom.
b. On bottom, 'Scoop Roll' back to prone, tank up.
c. Establish neutral buoyancy.

5. UNDERWATER SKILLS 1 – SWIMMING/CESA
a. Neutrally buoyant, swim 5 minutes, or until comfortable, using two swimming methods.
b. Para Diver Swimming Methods: BREAST-STROKE (Stroke & glide) and SCULLING.
b. Para Diver Stop and preform Regulator Recovery.
c. Para Diver perform CESA & Oral inflate at surface
Method: Keep head & arms in water, only face out of water, take breathe & blow it into BCD.

6. DIVER DESCENT
a. Para Diver preform Feet first descent. (Back scoop & swim over legs)
b. Buoyancy Controlled Descent. (Release air from BCD just until hair floats then Exhale)
c. Para Diver, Inhale to Stop mid-water and hover 30 seconds.
d. Descend to, but do not touch, the bottom. Swim 1 circuit.

PARAPLEGIA (Cont.) - CONFINED WATER EXERCISES

7. UNDERWATER SKILLS 2 - BUDDY BREATHE
a. Buddy Breathe Stationary, swim 1 circuit & ascend.
b. Method: Receiver of air Orally Inflates BCD at the surface. Donor Auto Inflates BCD & provides support for receiver until both are positive buoyant.
c. Buoyancy Controlled Descent, stop & hover 30 seconds.
d. Transition to swimming, swim 1 circuit.
e. Reverse receiver/donor and repeat Exercise 7.

8. UNDERWATER SKILLS 3 - INTEGRATED INFLATOR/BACKUP REGULATOR
(If you do not have integrated backup regulators, Simulate by having the Donor pass their primary regulator to the Receiver & then recover their own octopus regulator for air.)
a. Buoyancy Controlled Descent, stop & hover 30 seconds.
b. Share Air Stationary, swim 1 circuit & ascend.
c. Receiver of air orally inflates BCD at the surface. Donor auto inflates BCD & provides support for receiver until both are positive buoyant.
d. Buoyancy Controlled Descent, stop & hover 30 seconds.
e. Reverse receiver/donor and repeat Exercise 8.

9. UNDERWATER SKILLS 4 - RIGHT ARM AMPUTEE
(both candidates perform this at the same time)
a. Buoyancy controlled descent, stop & hover 30 seconds.
b. Regulator recovery left hand only. Use gravity.
c. Mask removal & replacement, left hand only.
Method: Place mask on face, clear it, inhale slightly & pull strap into place.
d. Buoyancy Controlled Ascent, stop & hover 30 seconds.

10. TIRED BUDDY TOW & TOWING WHILE VENTILATING
a. Tired buddy 'push'; Able Bodied Buddy fins on Para Divers' shoulders.
b. Para Diver, in prone position, uses breast stroke to push tired buddy 1 length of pool.
b. Para Diver, Tow buddy while Ventilating 1 length of pool, 3 strokes pinch & ventilate.
Method: Para diver can use a chin tow, or reach across chest of victim & hold BCD strap, whatever works.

11. EXIT WATER
a. Para Diver, remove weights, BCD & tank.
b. Leave mask & snorkel in place, and exit the water.
c. Pull self-up with arms, can receive help straightening legs.

12. PARA DIVER BECOMES QUAD DIVER – DO NOT CHANGE ROLES
a. Continue to MOBILITY IMPAIRED – QUADRIPLEGIA Exercises Training Slate.

QUADRIPLEGIA - CONFINED WATER EXERCISES

PARAPLEGIC DIVER *BECOMES* QUADRIPLEGIC DIVER

1. POOLSIDE

a. Quad Diver lies still at point of entry. Only neck & head move.
b. Primary Buddy dresses the Quad. Diver - the Quad's job is to do nothing.
c. Lift quad. & don weights.
d. Sit Quad Up & Don SCUBA, secure straps & buckles.
e. Don Mask. Hold mask still while Quad positions face in it.
f. Inflate BCD; Check leg bag & place regulator in Quads mouth.
g. Roll Quad gently into the water onto shoulder.
h. Primary Buddy Don's Scuba & enters water.

2. DIVER DESCENT

a. Primary Buddy Positions Quad Diver for Feet First Descent.
   Method: Hold BCD strap, push legs down, pull diver upright with both hands.
b. Primary Buddy Maintain eye contact & Deflate your own BCD first.
c. Deflate Quad's BCD, maintain eye contact & keep Quad upright.
d. Descend, stop & hover 1 minute. Equalize ears for Quad Diver.
e. Descend to bottom, Transition to Swimming without touching bottom.
   Method: Hold quad's left BCD strap with your left hand, and pull into swim position.

3. UNDERWATER SWIM - SCUBA PERFORMANCE

a. Establish neutral buoyancy for self & Quad Diver.
b. Swim 5 minutes minimum - or until comfortable
c. Make eye contact often & maintain communication.
d. This is a pleasure dive, practice until both you and the Quad Diver are enjoying the dive.

4. UNDERWATER SKILLS 1 - CESA

a. Stop swimming; Primary Buddy performs Regulator Recovery 'for' Quad Diver.
b. Primary Buddy, perform CESA for Quad Diver & Oral inflate quad's BCD at surface.
   (Quad Diver. must spit out regulator immediately at surface)

5. UNDERWATER SKILLS 2 - BUDDY BREATHE

a. Primary Buddy Positions Quad Diver for Feet First Descent, Descend Feet first, stop & hover 30 seconds.
b. Descend to bottom, Transition to swimming & swim 1 circuit.
c. Buddy Breathe stationary, swim 1 circuit & ascend. Quad Diver is Receiver of air.
d. At the surface Primary Buddy Auto Inflates own BCD then Orally Inflates quad's BCD.
e. Descend, stop hover 30 seconds, transition to swimming, and swim 1 circuit.
f. Buddy Breathe stationary, swim 1 circuit & ascend. Quad Diver is Donor of air.
g. At surface Primary Buddy Orally inflate own BCD, Auto Inflate quad's BCD.

QUADRIPLEGIA (Cont.) - CONFINED WATER EXERCISES

6. UNDERWATER SCUBA SKILLS 3 – MASK REMOVE/REPLACE

a. Primary Buddy Positions Quad Diver for Feet First Descent, Descend, stop & hover 30 seconds.
b. Descend to bottom, Transition to swimming & swim 1 circuit.
c. Stop. Primary Buddy completely Remove & Replace Quad Diver's mask.
d. Buoyancy controlled ascent, stop & hover 30 seconds.
e. At surface Primary Buddy pull Quad onto back, inflate BCD & remove regulator.

8. EXIT WATER

a. Primary Buddy Tow Quad Diver to Exit point & remove weights.
b. Unbuckle Quad Diver's BCD, leave mask on.
c. Use topside assistant to hold quad under arms, push BCD/tank away.
d. Primary Buddy Position Quad Diver upright facing topside assistant.
e. Primary Buddy Descend directly below Quad Diver. & grip legs just above knees.
f. Keep quad's legs straight, and swim "straight up" pushing them out of the water.
   Note: All lifting is done in the water.
g. Topside assistant guides Quad Diver unto pool deck. Primary Buddy lifts legs & assists sliding Quad Diver unto pool deck.
f. Topside Assistant place Quad Divers arm so it is not rolled on, roll Quad Diver onto back & sit them up.

9. REVERSE ROLES

a. Repeat all Mobility Impaired Training Exercises for paraplegia & quadriplegia, except arm Amputee. MOBILITY IMPAIRED - PARAPLEGIA exercise #9.

10. Reverse Roles for Dive Team of 3

a. Mobility Impaired Diver becomes Primary Buddy.
b. Primary Buddy #1 leaves the team.
c. Waiting Diver becomes Mobility Impaired Dive.
d. Reverse Roles 3 times so each Candidate plays all the training roles.

COMMENTS:

SIGHT IMPAIRED - CONFINED WATER EXERCISES

1. POOLSIDE
a. Assemble all ITC/DBC Candidates
b. Disassemble SCUBA for sight impaired divers.
c. Sight Impaired Divers don Blacked Out Masks.
d. Buddy Teams Review Tactile Signals.

2. TACTILE SIGNALS
a. OK: squeeze bicep.
b. Descend: Pressure applied to back of hand with one finger.
c. Ascend: Pressure applied to palm of hand with one finger.
d. Neutral: Circular motion applied to back of hand, followed by "ascend" if too negative, by "descend" if too positive.
e. Start Swimming: Two squeezes right forearm.
f. Stop Swimming: One squeeze right forearm.
g. Regulator Recovery: Squeeze right shoulder, gentle tug on regulator.
h. Out of Air: Tap on sight impaired divers' chest, they are out.
i. CESA: Tap on chest of sight impaired diver, followed by "ascent" signal.
j. Gauges; Air, Depth & Time: Circle traced in palm of hand with finger.
k. Air Pressure: Trace circle, followed by 1 squeeze (their air), each finger = 100psi or 10 millibar.
l. Buddy Breathe: Receiver, tap on chest, tap on regulator. Donor, tap on regulator.
m. Depth: Trace circle, followed by pressure to back & palm of hand (up & down). Each finger is 10 feet /3m.
n. Time: Trace circle, followed by squeeze to wrist. Count time on fingers.

3. BLIND DIVER ENTRY & SURFACE PERFORMANCE
a. Blind Divers assemble SCUBA with blacked out mask in place.
b. Dive Teams Don SCUBA.
c. Enter with giant stride, Blind Divers first.
d. Dive Teams Surface Swim pool length.
e. Blind Divers guided by Sighted Buddy's voice.

4. DESCENT – EQUALIZE EARS/NEUTRAL BUOYANCY
a. Dive Teams make feet first descent, maintain tactile contact at all times.
b. Sighted Buddy gives tactile signal to stop, hover, and equalize ears.
c. Dive Teams create their own tactile signal for equalizing ears. Tactile signal must be simple & easy to remember.
d. Dive Teams Descend to bottom, use Tactile Signals & establish neutral buoyancy.

5. UNDERWATER SKILLS 1 – SWIMMING/REG RECOVERY/CESA
a. Swim 1 circuit; Sighted Buddy pushing Blind Diver in the proper directions.
b. Swim 1 circuit; Sighted Buddy guiding Blind Diver in proper directions.
c. Swim for 5 minutes.
d. Blind Diver performs Regulator Recovery; Sighted Buddy uses Tactile Signal for Regulator Recovery.
e. Blind Diver performs CESA. Sighted Buddy uses Tactile Signals for CESA.

SIGHT IMPAIRED (Cont.) - CONFINED WATER EXERCISES

6. UNDERWATER SKILLS 2 - BUDDY BREATHE
a. Dive Teams Perform buoyancy-controlled descent, stop & hover 30 seconds.
b. Dive Teams Establish neutral buoyancy & swim 1 circuit.
c. Buddy Breathe stationary, swim 1 circuit & ascend. Blind Diver is Receiver of air.
d. At the surface Sighted Buddy Auto Inflates BCD, Blind Diver Orally Inflates BCD.
e. Dive Team Swim to poolside, Blind Diver exit with backed out mask in place.

7. REVERSE ROLES
a. Blind Diver remove blacked out mask ‘carefully’. Keep eyes shut to avoid discomfort.
b. Repeat all exercises.

8. Reverse Roles for Dive Team of 3
a. Blind Diver becomes Sighted Diver.
b. Sighted Diver #1 leaves the Team.
c. Waiting Diver becomes Blind Diver.
d. Reverse Roles 3 times so each Candidate plays all the training roles.

COMMENTS:

HANDICAPPED SCUBA ASSOCIATION
ITC/DBC OPEN WATER EXERCISES

DIVE TEAM OF 3 OR 4
a. Instructor or Primary Dive Buddy
b. Paraplegic Student
c. Blind Student
d. Dive master (with four in dive team)

Caution: When you are a Student - *DO NOT INSTRUCT!*
Note: Dive Buddy Candidates; for the training purpose of integrating the ITC/DBC courses, all candidates will be referred to as Instructor or Student during these exercises.

1. PREDIVE PREPARATION
a. Student 1 sits where appropriate. Bind legs. Check leg bag.
b. Student 2 sits where appropriate. Don Blacked out Mask.
c. Instructor organize dive plan with students, decide who enters first.
Consider water temperature & student comfort levels.
d. Paraplegic Student transfers to point of entry, dons SCUBA.
e. Blind Student walks to point of entry, dons SCUBA.
f. Students Buddy check, enter the water.
g. Instructor enters water and checks student diver's equipment.

2. DESCENT – BUOYANCY CONTROLLED DESCENT
a. Instructor.
b. Perform a buoyancy controlled descent with both student divers.
b. Stop & hover for 1 minute, check ears, descend to bottom.
c. Establish neutral buoyancy & begin dive, keep students together.

3. UNDERWATER SKILLS 1 – SWIMMING TOUR
a. Take student divers on a 5 minute underwater tour, a fun dive.
b. For blind students provide 'tactile' experience of environment such as touch the bottom & feel shells, communicate to them how deep they are & their air pressure.
c. Both students need Instructors full attention. Often times the Para will be left behind.

4. ASCENT – BUOYANCY CONTROLLED ASCENT
a. Perform a Buoyancy Controlled Ascent, 30 feet per minute, with both student divers.
b. Stop & hover for 30 seconds, ascend to surface and attain positive buoyancy.
c. Dive Team should surface at or very near point of exit.

5. EXIT WATER
a. Instructor decides who exits first.
b. Both student divers exit the water, with assistance if necessary.
c. Do NOT reverse roles.

6. QUADRIPLEGIC STUDENT DIVER & ENTRY
a. The Paraplegic student diver becomes Quadriplegic. Only neck & head move.
b. The Blind Student diver removes blacked out mask & becomes the Assistant.
Caution! Close eyes and face away from sun when removing blacked out mask.
c. The Instructor, with their assistant, checks quadriplegic student diver's equipment.
d. Check Quad's leg bag; inflate BCD, don their mask and put regulator in their mouth.
e. With assistant, roll, or drag, quadriplegic diver into the water. Instructor decides proper method for entry, location of assistant, point of entry, etc.

7. DESCENT 1 – BUOYANCY CONTROLLED DESCENT
a. Instructor uses assistant and performs a proper buoyancy controlled descent.
b. Position quad for descent, maintain eye contact and descend keeping diver upright. Instructor deflates own BCD, then quads BCD.
c. Stop & hover for 30 seconds, equalize ears for quad.
d. Descend to bottom, transition to swimming without touching bottom.

8. UNDERWATER SKILLS 1 – SWIMMING TOUR
a. Take quad diver on a pleasure dive for 5 minutes minimum, or until you're comfortable.
b. Show quad student diver the environment; this is a recreational dive, NOT a rescue, or something to get over with. Take your time and get comfortable!

9. UNDERWATER SKILLS 2 – CESA for QUAD DIVER
a. Perform a Controlled Emergency Swimming Ascent for Quad Diver, and at the surface auto inflate your BCD then orally inflate quads BCD.
b. The quads' job is to spit out the regulator immediately upon reaching the surface, and your job is to keep the quads' face out of the water while orally inflating their BCD.

10. DESCENT 2 – BUOYANCY CONTROLLED DESCENT
a. Instructor uses assistant and performs a proper buoyancy controlled descent.
b. Stop & hover for 30 seconds, equalize ears for quad.
c. Descend to bottom, transition to swimming without touching bottom.
d. Swim approximately 20 to 30 feet, and ascend.

11. ASCENT – BUOYANCY CONTROLLED ASCENT
a. Normal buoyancy controlled ascent, 30 feet per minute, stop and hover 30 seconds.
b. At surface pull quad diver onto back, inflate BCD & remove regulator.
c. Dive team should surface very near the point of exit.
d. Instructor & assistant together exit quad student diver from water.

12. REVERSE ROLES, DIVE TEAM OF 3 (this is the quickest system)
a. Instructor becomes sight impaired.
b. Sight impaired becomes mobility impaired.
c. Mobility impaired becomes Instructor.

13. REVERSE ROLES, DIVE TEAM OF 4 (this is a good system in cold environments)
a. Instructor becomes sight impaired.
b. Sight impaired becomes Mobility impaired.
c. Mobility impaired leaves team & becomes Dive Master.
d. Dive Master #1 becomes Instructor.

HSA RESORT/HOTEL EVALUATION
FOR WHEELCHAIR ACCESSIBILITY

DATE OF SITE INSPECTION _____ DATE FILED _____ / _____ / _____

RESORT/HOTEL NAME _____

CITY _____ STATE/PROVINCE _____ POSTAL CODE _____

COUNTRY _____ CONTACT PERSON & TITLE _____

TELEPHONE _____ FAX _____

EMAIL _____ WEBSITE _____

Wheelchair accessibility means that a person using a wheelchair can, without assistance, conveniently access and use all available facilities, such as: Parking, walkways, lobbies, swimming pool, boutiques, boat docks, restaurants, and toilets.

The answers to the following questions will give us a "general" accessibility profile of your Resort/Hotel facilities. However, because barriers to accessibility are often subtle and difficult to assess, it is impossible to give an accessibility rating without an on-site inspection. For on-site inspection please contact HSA at:
Telephone +949-498-4540, Fax +949-498-6l28 or email hsa@hsascuba.com

PARKING

- Handicapped parking spaces? Yes _____ No _____ How many _____
- Ramp or curb cut to walkway? Yes _____ No _____

WALKWAYS

- Minimum, 36 inches/90 cm wide and smooth? Yes _____ No _____ Width _____ inches/cm

RAMPS

- Width 48 inches/120 cm, minimum 36 inches/90cm Ramp width _____inches/cm.
- Grade, for each l inch/2.54 cm of Rise (R), l foot/30 cm of Ramp Length (L) is needed.

  Grade R/L: R _____inches/cm by L _____ feet/m
- Is there a maid and/or a maintenance ramp system?

  Yes _____ No _____ Comments _____

BUILDING ENTRANCE

- Are there steps into the building? Yes _____ No _____ How many? _____
- Is there a ramp into the building? Yes _____ No _____
- Entryway porch dimensions, minimum turning area is 5 ft/l50 cm x 5 ft/l50 cm.

  Dimensions _____
- Is the threshold level with the floor? Yes _____ No _____
- Doorway width, minimum 32 inches/80 cm wide. Doorway width _____ inches/cm.

LOBBY

- Are there steps to the lobby? Yes _____ No _____ How many? _____
- Is there a ramp to the lobby? Yes _____ No _____
- Is the check-in counter accessible? Yes _____ No _____

ROOM ENTRANCE

Is entryway accessible? Yes _____ No _____

- Are there steps to the room?

  Yes ____ No ____ How many _____ Step height _____ inches/cm
- Is there a ramp? Yes ____ No ____ Grade R ____ L ____ inches/cm
- Doorway width, minimum 32 inches/80 cm wide. Doorway width _____ inches/cm.
- Door opens to 90 degrees? Yes _____ No _____ Pocket door? _____
- Door opens to outside? Yes _____ No _____
- Door opens to the "Inside"? Access space _____ inches/cm

  NOTE: If the door opens “In” to the room, a minimum ACCESS SPACE of 36 inches/90 cm next to the door, on the side nearest the door handle, is necessary for wheelchair clearance.
- Hallway minimum turning space is 5 feet/150 cm. Hallway width? _____ feet/cm
- Door handles Lever _____ Knob _____

RECOMMENDATIONS _____

BATHROOM (toilet area)

- Doorway width, minimum 32 inches/80 cm wide. Width _____ inches/cm
  - Door opens to 90 degrees? Yes _____ No _____ Pocket Door _____
  - Door opens to outside? Yes____ No____
  - Door opens to inside; does it block the; Wash basin ____ Bathtub ____ Toilet _____
  - Can it be opened and closed from the inside while in a wheelchair?

    Yes _____ No _____ Access Space (36 inches/90 cm) next to door _____ inches/cm
- Clear floor space area, minimum turning area is 5 ft/150 cm x 5 ft/150 cm.

  Clear floor space _____ ft/cm X _____ ft/cm COMMENTS _____
- Toilet, minimum access space from one wall is 36 inches/90 cm.

  Access space _____ inches/cm
  - Standard height l6 inches/40 cm to l9 inches/48 cm.

    Toilet height _____ inches/cm
  - Is there a padded multi-positional seat available? Yes _____ No _____
- Wash basin (sink), minimum height of ROLL-IN SPACE UNDER the basin is 29 inches/75 cm.
  - Roll-in space Yes ____ No ____ Height _____ inches/cm
  - Sink height Height _____ inches/cm
  - Lever faucets Yes _____ No _____
  - Are pipes under the sink covered? Yes _____ No _____

NOTE: For a person with a spinal cord injury that has lost sensory function (ability to feel their legs), running hot water through uncovered pipes can *BURN THEIR LEGS* without them knowing it.

- Low mounted mirror? Yes ____ No ____ Height _____ inches/cm
- Shower, roll in? Yes _____ No _____
- Shower head, hand held? Yes _____ No _____
- Shower, control knobs within reach;
  - Height 36-40 inches/90-100 cm Height _____ inches/cm
  - Length, reach distance from faucets Reach _____ inches/cm
- Drain in bathroom floor? Yes _____ No _____
- Bathtub, padded bench with back and arm rests? Yes _____ No _____
- Bathtub, standard height 22 inches/55 cm. Height _____inches/cm

RECOMMENDATIONS _____

_____

BEDROOM

- Doorway width, minimum width 32 inches/80 cm wide.

  Doorway width _____inches/cm
- Bed height, 22 inches/55 cm for independent transfers into and out bed.

  Bed height _____ inches/cm
- Bed space, minimum distance from one wall is 36 inches/90 cm.

  Bed access space _____inches/cm
- Telephone next to the bed?

  Yes____ No____
- Telephone access, passageway to telephone at least 32 inches/80 cm.

  Passageway width _____ inches/cm
- Light control switches; height 36 inches/90 cm to 40 inches/100 cm high.

  Height _____ inches/cm
- Light control switches accessible from bed?

  Yes____ No _____
- Curtain pulls within reach, height 36-40 inches/90-100 cm

  Height _____inches/cm
- Closet space accessible, clothes hanger height 36-40 inches/90-100 cm

  Height_____ inches/cm
- Security peep-hole in entry door, height 36-40 inches/90-100 cm

  Height _____inches/cm
- Air conditioning controls within reach, height 36-40 inches/90-100 cm

  Height _____ inches/cm

RECOMMENDATIONS _____

_____

KITCHEN

- Doorway/Entryway width, minimum width 32 inches/80 cm.

  Doorway width _____ Inches/cm

- Wash basin (sink), minimum height of ROLL-IN SPACE UNDER the basin is 29 inches/75 cm
  - Roll-in space — Yes ____ No ____ Height _____ inches/cm
  - Sink height — Height _____ inches/cm
  - Lever faucets — Yes _____ No _____
- Stove controls located on the front of stove?

  Yes_____ No _____ Location _____
- Refrigerator: BOTH sides of the refrigerator are clear so it can be approached from either side and the door opens to l80 degrees. Yes _____ No _____ Opens _____ degrees
- The refrigerator is in a corner with one side blocked by a wall or cabinet, the door will open to l80 degrees?

  Yes _____ No _____ Opens _____ degrees
- Is there a 36 inches/90 cm wheelchair access space?

  Yes ____ No ____ Access space _____ inches/cm

RECOMMENDATIONS _____

_____

DIVE STORE-RESTAURANT-BAR-BOUTIQUES-DISCO

	Dive Store	Restaurant	Bar	Boutique	Disco
Are there steps? How many?					
Is there a ramp? Grade?					
Entry dimensions 5ft/1.5m x 5 ft/1.5m					
Is the threshold level with floor?					
Doorway width 32 inches/80 cm					
Is it located on ground level?					
Is there a reliable elevator?					

RECOMMENDATIONS _____

_____

_____

SWIMMING POOL

- Smooth walkways to pool area, minimum width 36 inches/90 cm

  Yes____ No____ Width _____inches/cm

- Are there steps to the pool deck?

  Yes _____ No _____ How many? _____ Step height _____ inches/cm

- Is there a ramp? Yes _____ No _____ Grade R ____ L ____ inches/cm
- Is there a smooth pool deck area, minimum width 5 ft/1.5 meters?

  Yes _____ No _____ Width _____ ft/m.

- Is there a pool lift? Yes _____ No _____

Are there any other barriers? What are they? _____

_____

RECOMMENDATIONS _____

_____

BEACH and SHORE DIVE SITE

- Smooth walkways to beach area, minimum width 36 inches/90 cm.

  Yes _____ No _____ Width _____ inches/cm

- Is there a walkway across the sand to the water?

  Yes _____ No _____ Width _____ inches/cm

- Is the sand on the beach "hard packed? Yes _____ No _____
- What is the sand beach width? Width _____ ft/cm.
- Is the Shore dive site: Sand _____ Rock _____ other _____
- Special considerations: _____
- Access to shore dive site is: Without help _____ With help _____
- Are there any other barriers? Yes _____ No _____
- What are they? _____

Access to Beach and/or Shore diving RECOMMENDATIONS: _____

_____

_____

BOAT AND PIER AREA

- Dive Site Location On-site _____ Off-site distance _____
- Transportation to Off-site dive location is: Provided ____ Type _____ Accessibility _____
- Smooth walkways to boat boarding areas, minimum width 36 inches/90 cm

  Yes ____ No ____ Width _____inches/cm.

- Are there steps to the pier/dock? Yes ____ No ____ How many? _____ steps
- Are there steps into the boat? Yes ____ No ____ How many? _____ steps
- Is there a ramp? Yes ____ No ____ Grade R ____ L ____ inches/cm

- Difficulties in boarding _____
- DIVE BOAT
  - Was the boat built or adapted for scuba diving? Yes _____ No _____
  - Is the boat: Hard side? _____ Inflatable? _____ Other? _____
  - Water entries and exits are from the:
    Dive platform _____ Deck _____ Over the gunwale or transom _____
  - Distance from the waterline to the water entry & exit point is: Height _____ feet/meters
  - On board is there room for a wheelchair? Minimum turning area is 5 ft/l-l/2 meters x 5 ft/l-l/2 meters.
    Yes____ No____ Clear deck area _____feet/meters X _____feet/meters
  - Is there shade available? Yes ____ No ____ Area _____
  - Ease of movement: Galley _____ Shower _____ Head _____ Other _____

ON BOARD STAFF: HSA Instructors _____ HSA Dive Masters _____

OTHER Staff (please explain) _____

RECOMMENDATIONS _____

_____

_____

OVERALL EVALUATION: make additional comments you feel are important. Include attitude of dive/resort staff.

_____

_____

_____

_____

_____

_____

HSA EVALUATOR _____ HSA # _____

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HANDICAPPED SCUBA ASSOCIATION
INSTRUCTOR/DIVE BUDDY EXAM
[Instructor Exam 60 Questions – Dive Buddy Exam first 50 Questions]

NAME _____ DATE _____/_____/_____

1. The Spinal Cord is protected by:
a. Myelin sheath
b. Vertebrae & meninges
c. Muscle groups
d. Quick thinking
e. All of the above

2. Becoming disabled present a person with a crisis calling for mental adjustment, this adjustment is strikingly similar to:
a. Divorce
b. Loss of employment
c. Relocation to a new environment
d. Loss (death) of a loved one
e. All of the above

3. The "ideal" final phase of the adjustment usually takes about two years and can be described as:
a. Independent, not accepting help when offered
b. Arriving at a value change in which the disability is seen as inconveniencing but not overwhelming
c. Reconciling to one's fate
d. A renewed involvement in life, interacting with the environment, such as eating out, attending family events and participating sports activities.
e. b & d are correct

4. Your student, a T-2 complete paraplegic, is on the dive boat suited-up and ready to dive. You notice that suddenly he does not look well. He is holding his head, has perspiration on his forehead, and his nose is congested. He probably has:
a. Orthostatic hypotension and should lie down until the symptoms go away before he is allowed to dive.
b. Become sick with a cold and should not be allowed to dive
c. Hyperreflexia caused by some stimuli and should not be allowed to dive until the source is found, removed and the symptoms go away
d. An allergic reaction that will go away when he begins the dive

5. A person with a disability appears to need help and you want to get involved, you should:
a. Pretend nothing is wrong and give them whatever assistance they seem to need
b. Assist them and talk to them about the weather or something completely unrelated.
c. Ask them if they need assistance
d. Ignore the situation and see if they can work it out themselves
e. All of the above

6. When developing a relationship with an individual who has a disability:
a. Relate to their personality, not their disability
b. Treat the disability as a feature of the person, not to be ignored
c. Treat the disability as a feature of the person but not the main feature
d. Talk to them openly about their disability
e. All of the above

7. The vertebrae are classified into three groups; which is the correct grouping?
a. 10 thoracic, 6 lumbar, 7 cervical
b. 5 lumbar, 12 thoracic, 8 cervical
c. 7 cervical, 12 thoracic, 5 lumbar
d. 7 thoracic, 12 cervical, 7 lumbar

8. The approximate location of these three groupings of vertebrae is:
a. Cervical - neck, Thoracic - trunk, Lumbar - lower back
b. Thoracic - neck, Cervical - trunk, Lumbar - lower back
c. Cervical - neck, Lumbar - trunk, Thoracic - lower back
d. Lumbar - neck, Thoracic - trunk, Cervical - lower back
e. None of the above

9. If someone refers to their disability as T-6 Complete, they mean:
a. The area of injury to the spinal cord is at the #6 thoracic vertebra
b. They have a complete loss of sensory and motor functions below the 6th thoracic vertebra
c. They have a loss of sensory and/or motor function below the 6th thoracic vertebra
d. a and b are correct
e. None of the above

10. A person whose disability is the result of Polio or Guillain-Barre may have:
a. Loss of motor and sensory function
b. Loss of motor function and bladder or bowel control
c. Loss of sensory function only
d. Loss of motor function only
e. None of the above

11. Decreased circulation in affected areas increase the tendency toward chilling and fatigue for people with disabilities caused by:
a. Traumatic spinal cord injury
b. Polio and Guillain-Barre
c. Traumatic spinal cord injury, Polio and Neural Tube defects
d. Spina Bifida
e. None of the above

12. A person's disability is classified as quadriplegic. Which one of the following is correct?
a. They have a spinal cord injury within the area C-7 to C-4, all four limbs are involved. They may have a loss of thermal control, ability to sweat below the level of injury; their respiratory function, reduced ability to breathe, may also be affected.
b. They have a spinal cord injury within the area C-7 to C-1, all four limbs are involved. They may have a loss of thermal control, ability to sweat below the level of injury; their respiratory function, reduced ability to breathe, may also be affected
c. They have a spinal cord injury within the area T-2 to C-1, all four limbs are involved. They may have a loss of thermal control, inability to sweat below the level of injury; their respiratory function, reduced ability to breathe, may also be affected
d. They have a spinal cord injury within the area T-2 to C-4, all four limbs are involved. They may have a loss of thermal control, inability to sweat below the level of injury; their respiratory function, reduced ability to breathe, may also be affected
e. None of the above

13. Your student is a C-6 incomplete quadriplegic; you are on board the dive boat and preparing to dive with her. The correct procedure is:

a. Assemble your student's scuba gear, put on her exposure suit and weight belt, at the point of entry don her scuba, mask and snorkel, ensure her leg bag is empty, and inflate her BCD. Assemble and don your scuba equipment, roll her into the water to your waiting assistant, and enter the water yourself. Begin the diving activities immediately
b. Assemble your student's scuba gear, put on her exposure suit and move her to the point of entry. Lay her down and put on her weight belt, sit her up and don her scuba, mask and snorkel. Buddy check and roll her into the water to your waiting assistant. Don your scuba equipment and enter the water. Check her equipment and begin the diving activities
c. Assemble and check the scuba gear for you and your student. Put on her exposure suit, move her to the point of entry, lay her down and don her weight belt. Sit her up and don her scuba, mask and snorkel, ensure her leg bag is empty and inflate her BCD. Buddy check and roll her into the water to your waiting assistant, don your gear, and enter the water. Check her equipment and begin the diving activities
d. Assemble and check her scuba gear, and prepare your scuba gear for diving. Put on her exposure suit, move her to the point of entry, lay her down and put her weight belt. Sit her up, ensure her leg bag is empty, and don her scuba, mask and snorkel. Roll her into the water to your waiting assistant. Don your scuba gear, enter the water and begin the diving activities

14. Spinal cord injury sometimes causes a loss of bladder control and a urine collection bag, commonly called a leg bag, may be worn. Which one of the following is correct?

a. Males and females may attach to the leg bag with a gizmo or an indwelling catheter
b. Males will use a condom catheter called a gizmo and females will use an indwelling catheter
c. Males may catheterize intermittently, use a leg bag with either a condom catheter, commonly called a gizmo, or an indwelling catheter inserted into the bladder through the urethra. Females will use an indwelling catheter with a leg bag, or catheterize intermittently
d. Females usually don't require the use of a collection bag

15. Multi-level Certification is based upon the divers ability help another diver in distress, and/or the type of buddy assistance they require. Which of the following statements are true?

a. The third dive buddy in a Level B or Level C dive team is necessary to assist the B or C diver
b. Level C certification is for divers that have been unable to demonstrate their ability to perform certain skills, such as operating a BCD, that require the assisting buddy to have skills beyond that of an open water diver
c. Type and/or severity of disability is important in deciding their certification level
d. Subjective evaluation of the student's ability to dive under certain conditions is important in deciding their certification level
e. All of the above

16. Deafness is very isolating and people with hearing impairments tend to be withdrawn in social situations, in groups of others with hearing impairments they:

a. Are never found in groups since they are so withdrawn
b. Many are very expressive and sociable, by learning some signing you can help bring them out in a regular class situation
c. Somewhat sociable, by attempting to learn signing you may offend them
d. None of the above

17. There are 3 types of hearing loss, conductive, sensori-neural, and Mixed (Conductive and Sensori-neural). Conductive is:
a. Hearing loss from diseases of the inner ear that destroy nerve endings -- the most profound hearing loss.
b. Interference with the transmission of vibrations to the inner ear
c. Structural damage of the eardrum, accounting for 50% of all hearing loss
d. None of the above

18. Of our 5 senses vision provides us with:
a. Approximately half of the information we receive about the world
b. Approximately 1/5th of the information we receive about the world
c. Our most efficient source of information about the world, approximately 84% of all the information we receive
d. No one knows how much information we receive through vision

19. Communication for the sight-impaired relies largely upon auditory information, which of the following are true;
a. Since they are so dependent on the spoken word, no special consideration need to be given when lecturing
b. Information from auditory social cues, intonation, and hesitancy in someone's voice are the equivalent of body language
c. They are less dependent on detailed verbal explanations since they are listening more closely
d. They may be more aware of the precise use of language and are more dependent on verbal explanations
e. All of the above

20. For someone with a hearing impairment, lip reading is a valuable communication skill, which of the following is correct:
a. For the skilled in lip reading, almost all the sounds of speech are visible if you speak clearly and do not exaggerate lip movements
b. Even to the very skilled in lip reading less than 1/3rd of the speech sounds can be detected visibly, so it is important to emphasize the sounds with lip movements
c. To the average person skilled in lip reading, about ½ the sounds of speech are visibly detected, which is plenty for normal conversation
d. Less than 1/3rd of the speech sounds can be visibly detected so it is necessary to maintain eye contact and speak clearly

21. Your student is a C-3 quadriplegic and is totally dependent on their buddy for descents, ascents, buoyancy control and swimming. The correct procedure for descending is:
a. Face your student and with one hand push their legs down, then hold their BCD straps and pull them close to you. Maintain eye contact and deflate your BCD, then theirs. Control buoyancy for a slow descent. Upon reaching the bottom, pull them into the prone position for swimming
b. Hold your student's BCD straps, push their legs down and pull them close to you, positioning them for a feet first descent. Maintain eye contact and release the air from your BCD, then begin descending by releasing the air from their BCD. Control buoyancy for a slow descent, stopping from time to time to clear ears. Reach the bottom neutrally buoyant and pull them into position for swimming
c. Face your student, hold their BCD straps and push their legs down. Maintain eye contact and release air from their BCD. Begin descent by releasing air from your BCD, control buoyancy for a slow descent, stopping when necessary to clear ears. Pull them into position for diving upon reaching the bottom.
d. Hold your student's BCD straps and push their legs down positioning them for a feet first descent. Establish their neutral buoyancy by releasing air from their BCD. Control buoyancy for a slow descent, reach the bottom neutrally buoyant and pull them into the prone position for swimming

22. There are an estimated 45,000 amputations per year, which of the following are correct; there may be more than one answer.
a. There are over 10 times lower extremity amputations than upper extremity amputations
b. There are three times more males than females that are subject to amputations
c. Upper extremity and AK amputees adapt to their disability better than BK amputees
d. BK amputees adapt well to prosthesis and are able to walk, but sometimes AK amputees do not and will use a wheelchair

23. Multiple Sclerosis, MS, is thought to be an autoimmune attack on the central nervous system, demyelinating nerve fibers; which of the following statements are <u>incorrect</u>?
a. MS is a progressive disease growing worse over time
b. People with MS are intolerant of heat and can become very exhausted with physical activity
c. People with MS have good judgment regarding their abilities
d. Symptoms vary from mild to severe with remissions and exacerbations

24. Your student is a T-2 complete paraplegic, he has made 3 training scuba dives in one day, is slightly chilled and has a headache that will not go away. Which of the following are correct?
a. Your student may be mildly hypothermic
b. Hyperreflexia increases the potential for hypothermia
c. Hypothermia cannot cause hyperreflexia
d. His headache may be caused by hyperreflexia

25. Cerebral Palsy (CP) is a disorder of the motor centers of the brain. A person with CP will exhibit:
a. Loss or impairment of control over voluntary muscles and reduced mental capacity
b. Ataxia, lack of balance due to lack of coordination and a slower learning ability
c. Spasticity and Athetosis, constant recurring series of slow involuntary movements that increase with cold & anxiety precluding them from scuba diving
d. Impairment of control over voluntary muscles with symptoms that vary from so mild they fit into normal society to so severe they require constant care

26. When scuba diving the urine collection bag is usually:
a. Worn inside the exposure suit
b. Removed for open water diving but sometimes worn in the swimming pool
c. Removed for open water diving and the swimming pool
d. Worn outside the exposure suit

27. Until the 1950's, all people with Cerebral Palsy were considered mentally deficient; however, new intelligence tests reveal that:
a. 75% are mentally deficient, 15% dull-normal and 10% normal
b. 25% are mentally deficient, 50% dull-normal and 25% normal
c. 50% are mentally deficient, 25% dull-normal, 25% normal and above
d. 25% are mentally deficient, 25% dull-normal, 50% normal and above

28. The stump (residual limb) requires several months to mature, at which time:
a. It reaches a steady state, shrinkage stops and it can be treated the same as an unaffected limb
b. It continues to shrink but can be treated the same as an unaffected limb
c. It reaches a steady state, but must be protected from injury at all times
d. Circulation has returned to normal and it is no longer subject to ulceration or decubiti

29. Spinal cord injuries cause decreased circulation in the affected areas that slow the healing process. This can:
a. Cause decubiti that take months to heal
b. Cause decubiti that require hospitalization
c. Cause decubiti from injuries to the affected areas
d. Cause decubiti when injuries, such as sunburn, bruises or scrapes, occur to the affected area
e. All of the above

30. Hemiplegia refers to paralysis of one side of the body. It is usually caused by:
a. Polio, Guillain-Barre or MS
b. Traumatic injury to the spinal cord
c. Congenital defects such as Spina Bifida
d. Brain trauma such as stroke, blood clot, injury or embolism

31. Hearing impairment is referred to as the "invisible" disability because:
a. The handicap is only observable when communication occurs
b. Of how they sound to others, stigma develops
c. The real handicap of deafness is impaired speech
d. They are sometimes misinterpreted as retarded due to speech distortions

32. The visually impaired person develops special facilities to receive information about the world, they may:
a. Develop the capacity to “feel” objects
b. Develop "tactile" vision, enabling them to explore the environment by touch
c. Have a greater sense of dimensionality -- able to obtain "tactile" information from all sides of an object, integrate the images and thereby appreciate all sides simultaneously
d. Develop the capacity to “hear” objects
e. All of the above

33. A person with paralysis of the legs may have difficulty donning protective clothing (wet suit). Solutions to this problem are: (there may be more than one answer)
a. Use a loose-fitting wetsuit, lubricate the inside of the suit and help them pull it on
b. Lubricate the inside of the suit, use plastic sandwich bags over hands & feet
c. Use a loose-fitting gusseted wetsuit with zippers along the legs, hips, torso and arms that 'tuck' the neoprene into a proper tight fitting wetsuit
d. Lubricate the inside of the suit, have zippers installed in the wetsuit legs, hips and arms. Assist them by helping them pull it on

34. Muscular Dystrophy (MD) refers to a group of neuromuscular diseases that:
a. May produce progressive loss of muscular strength, reduce life expectancy, cause lung scarring, and personality, memory, learning and judgment disorders
b. Does produce progressive loss of muscular strength, and may result in lung scarring
c. Does cause progressive loss of muscular strength in the face, shoulders and upper arms. In some cases life expectancy may be shortened, and there may be physical disabilities, but otherwise they are normal and fit for diving
d. May cause judgment, learning and memory disorders

35. Swimming underwater presents the mobility-impaired diver with problems of balance and mobility. These problems can be solved by:
a. Repetitive training exercises designed to develop balance control and swimming techniques
b. Careful distribution of weights, placing most of the weight forward in the weight system, with small amounts at the knee, for paras or quads, or at the chest for leg amputees
c. Careful distribution of weights, snug fitting BCD, buoyancy control, and repetitive training exercises designed to develop balance control and swimming techniques
d. None of the above

36. Scar tissue is more prone to develop decompression sickness than normal tissue. For spinal cord injured divers:
a. This would not apply since the spinal cord is protected by a myelin sheath
b. There is a possibility that the area of injury may be more prone to develop decompression sickness and cause further damage to the spinal cord
c. There is the possibility that the area of injury may be more prone to develop decompression sickness and cause further damage to the spinal cord. It is therefore advised that a margin of safety be used when using dive tables
d. It is of no concern since only one case has been reported where a spinal cord injured diver developed decompression sickness while diving within the no decompression limits

37. At the surface, a paraplegic diver will often experience difficulty with:
a. Swimming in the prone position
b. Getting their legs under them to attain an upright position, so they can communicate and descend
c. Turning onto the prone position
d. Orally inflating their BCD
e. All of the above

38. Various disabilities can result in thermal control irregularities such as:
a. Tendency toward chilling due to inability to sweat and loss of extremities
b. Over-heating due to reduced circulation and loss of extremity
c. Over-heating due to inability to sweat, tendency toward chilling due to loss of extremities and reduced circulation
d. Over-heating due to loss of extremities, over-heating due to loss of ability to sweat, tendency toward chilling due to reduced circulation
e. None of the above

39. Accessibility considerations for resorts, classroom and pool facilities include:
a. Parking spaces wide enough to get their wheelchairs in and out, curb cuts near access to building, and walkways and ramps wide enough for a wheelchair (48in/120cm)
b. Entryways at least 32in/80cm wide, bathroom doors should open out, pool deck wide enough (5 ft/1.6 m) to maneuver wheelchairs and adjacent to dressing rooms
c. Shower regulators within reach when seated in wheelchair, shower entry is level, and the pool heated to 85F/30C
d. Doors opening into a room require a clear space of 36 inches/90cm next to door on the side nearest the door knob or level.
e. All of the above

40. PTSD, Post Traumatic Stress, classified as an Anxiety Disorder, occurs in response to traumatic events when people experience strong emotional symptoms. Which of the following is <u>not</u> true?
a. Functioning in an environment that provides understanding, safety and emotional support is primary toward re-claiming ones pre-trauma self. Methods for managing fear, the primary building block of PTSD, are available in therapy. Scuba training that requires control over fear, such as mask removal and buddy breathing, Scuba travel & socializing may also help.
b. PTSD is a relatively new anxiety disorder with much of what is known coming from studies of Vietnam War Veterans, and is found almost exclusively in recent combat veterans.
c. Someone that is irritable, on-edge and subject to out bursts of crying, may be suffering from PTSD.
d. Traumatic events that can cause PTSD are exposure to combat, a life threatening illness, loss of a loved one, rape, loss of a limb, seeing others injured & dying and child abuse.

41. Beach diving presents the mobility-impaired diver with natural barriers, namely stairs and sand. Which of the following are correct?
a. Avoid stairs and wide sandy beaches when possible, but if a good dive site lies on the other side, go for it.
b. Stairs can be negotiated either by helping the person down in their chair or by carrying them down.
c. Sand can be crossed by, creating a surface for wheelchairs to roll on, or scooting across the sand on their own power
d. The person in the wheelchair can help control their descent by pulling back on the push rims of their chair. Some may get out of their wheelchair and go down the stairs themselves
e. All of the above

42. For the mobility-impaired diver, exiting the water onto a boat after diving is best done by:
a. Taking off their scuba equipment in the water, in this order: face mask and snorkel, BCD and tank and weight belt. Then have two helpers onboard hold them by their arms and pull them up onto the dive platform
b. Two helpers onboard hold the diver by their wrists, with the diver facing them, and pull the diver onboard with all the equipment in place except their weight system
c. Take off their scuba equipment in the water in this order: weights, BCD & tank, leave mask & snorkel in place. Then, with the diver facing the boat, the in-water buddy assists by holding the diver's legs above the knees, then kicks with their fins pushing the diver up, while the helper onboard assists by lifting under their arms onto the dive platform
d. Take off their scuba equipment in the water in this order: weights, mask & snorkel, BCD and tank. With the diver facing the boat, have one helper assist by holding the divers legs and pushing from below while the helper onboard pulls the diver onto the dive platform

43. Spina Bifida occurs when the neural tube fails to develop or close properly. Which of the following are true?
a. Myelomeningocele can result in learning disabilities and seizure disorders.
b. Some people with Occulta don't know they have it.
c. Meningocele may result in spinal cord nerve damage.
d. Symptoms may include loss of motor and/or sensory function, bladder and/or bowel control, reduced circulation and potential for developing decubiti.

44. You can access the HSA Website on laptops, tablets, and smart phones anywhere in the World there is access to the Internet, and from the front page you can Search for Instructors, Dive Masters, Dive Buddies & Course Directors worldwide, you are also able to:

a. Check the prerequisites and what the training is for HSA courses, check for ITC/DBC courses worldwide, and purchase HSA Films, Logo Polo Shirts, Flags & more from the HSA Store.
b. Locate accessible friendly Dive Boats, Aquariums, and locate HSA Training Centers worldwide.
c. Access articles published about HSA, and view HSA's YouTube film.
d. Login, download HSA Instructor, Dive Buddy and Advance Diver manuals, view your Certification Card and fill in the HSA Resort Evaluation Form.
e. All of the above.

45. Accessibility means that a person in a wheelchair can, without assistance, conveniently access and use all available facilities. Good examples of accessibility requirements are:
a. Parking spaces near curb cuts, smooth level walkways, doors that open out, and lever controls on shower
b. 32 inch/80cm doors that open in with 36-inch/90cm space next to the door nearest the door handle, and roll-in shower with hand held showerhead
c. Five (5) degree ramps to elevated areas, 22in/55cm high beds, hard packed sandy beach, and 36in/90cm space next to the toilet
d. Elevator, phone next to the bed, thresholds level with the floor, 5ft/150cm x 10ft/300cm balcony, light control height 40in/100cm and wash basin height 29in/75cm.
e. All of the above

46. At the surface the hearing-impaired scuba diver must:
a. Remain within reach of their dive buddy
b. Always hold onto their dive buddy
c. Maintain visual contact with their dive buddy
d. Always hold onto their dive buddy and maintain visual contact

47. Not all dive boats are as accessible as we would like, however diving independence means:
a. Diving those boats with specifications that meet the individual needs of the handicapped diver
b. Diving most boats, but stay within your physical limitations
c. Diving any boat, when barriers can be overcome, with safety as well as pleasure
d. Commercial dive boats are not for most handicapped divers; private boats and special charters are best

48. For the mobility-impaired diver, entering the water from a boat or a pool deck usually follows which procedure:
a. The individual is positioned either under their own power or with assistance, at the point of entry, their dive buddy brings their equipment to them and assists in any way necessary in donning it, and then the individual makes a modified front roll, or back roll, entry
b. The individual dons their equipment and moves to the point of entry, either under their own power or with assistance, and makes a modified front roll, or back roll, entry
c. The individual enters the water; their equipment is brought to them and, with whatever assistance necessary, they don it
d. The individual is positioned either under their own power or with assistance, at the point of entry, their equipment is brought to them, and with whatever assistance necessary they don it. With experienced divers on each arm, they enter the water using a front roll

49. The two HSA films made with Jean-Michel Cousteau & his father Jacques-Yves Cousteau are very significant films and demonstrate a large number of scuba skills and equipment important to divers with disabilities. Which of the following statements are true?
a. Jean-Michel Cousteau appeared in the classic film, Freedom in Depth, only after his father approved his unprecedented involvement in an organization outside the Cousteau Society.
b. Jacques Cousteau loved swimming underwater, and had always wanted to scuba dive.
c. It is common for the Cousteau's to appear in films for organizations that have worthy philanthropic purposes.
d. Jacques Cousteau had wanted to be an aero-pilot, but he was involved in a terrible traffic accident that left him broken and paralyzed and he was unable to realize his dream of becoming a pilot.

50. You are going to dive in Hawaii with new dive buddies. One buddy is certified Level C Open Water Scuba Diver, and her husband who is able-bodied, has been recently certified Open Water Scuba Diver by an internationally recognized diver training agency. He has a total of nine scuba dives performed in an inland quarry. She has been diving for three years and has logged a total of 126 scuba dives in various open ocean environments. Your dive plan will include the following: (It may require more than one answer)
a. You & her husband breathe from each other's alternate second stage air source, and plan the dive according to the comfort level of the Level C diver
b. You are comfortable with your own skills regarding the assistance you will provide the C level diver, and the dive plan clearly defines depth, duration, hand signals and the option for the Level C diver to terminate the dive at any time
c. The dive plan is based primarily upon the husband's scuba diving experience and comfort level of the Level C diver, and clearly defines emergency procedures for all members of the dive team.
d. The dive plan clearly defines the emergency procedures the Level C diver in the event that any one member were to have an emergency, and all members of the buddy team know how to operate every other member's BCD

51. With diabetes high blood sugar can lead to passing out (unconsciousness), as can high insulin levels (insulin shock). Which of the following are correct?

a. Someone with diabetes should not be allowed to scuba dive under any circumstances
b. A proper balance between diet, exercise and insulin regulation, approval by a medical doctor is a must for safe diving
c. Blood Glucose monitoring before and after diving
d. Diabetes is usually not that serious and therefore is not a contraindication for scuba diving

52. An important part of the educational process for students with disabilities begins with the student's initial evaluation,

a. Requiring the student to get a physical examination, and filling in the HSA Participant's Information form
b. Advising the student to get a physical examination and filling out a standard medical form used by your diver training agency and the HSA Student Information form
c. Filling out HSA Course Registration form and the Medical form used by your diver- training agency
d. Having the student fill in the HSA Course Registration form, Liability/Assumption of Risk form, Hazards & Risks form, and Medical History Questionnaire
e. a. and d. are correct

53. The HSA Marine Life Identification Performance Requirement, II.C.35 [R], is unique to the diving industry. The expected training result of this Performance Requirement is to:

a. Help the new Scuba diver develop an interest and involvement in the aquatic environment during their course of training.
b. Help reduce anxiety by getting them outside themselves through educational observation of the new environment that surrounds them.
c. Prepare the new Scuba diver for diving with their buddies without supervision.
d. Protect the environment through positive educational experiences and thereby develop the desire to continue Scuba diving.
e. All of the above.

54. Your student has completed five (5) scuba dives, but required assistance to successfully challenge these standards: I.C.11, 12, 16 & II.C.10, 11, 20, 31. What level of certification do they receive?

LEVEL ?

55. The HSA Physical Performance Standards were specifically developed for training divers with disabilities. These standards are the result of over two years of study and that included:

a. Common sense adaptations of existing standards, practical application to a wide variety of disability types by an Advisory Board of diver training specialists from NAUI and PADI
b. Considerable input from divers with disabilities, theoretical development and practical application to a wide variety of disability types, conducted and evaluated by the HSA staff and members
c. Several workshops for theoretical development, practical application to a wide variety of disability types by HSA staff, and evaluation by an Advisory Board of diver training specialists from NAUI and PADI
d. Several workshops for theoretical development and to remove standards, & portions of standards too difficult for students with disabilities, considerable input from divers with disabilities, evaluation by an Advisory Board of diver training specialists from NAUI and PADI

56. Epilepsy affects approximately 1% of the population and is characterized by disruption of consciousness (passing out), convulsions, alterations in sensory, motor and autonomic functions, alterations in cognitive (ability to understand) and emotional status. In 50% of the cases, epilepsy can be well controlled with medications, which of the following statements are true:
a. In these well-controlled cases the possibility of a seizure underwater has been eliminated
b. The emotional tension created by the demands of a new and/or frustrating situation can bring on a seizure
c. Most seizures would be of little or no concern to underwater safety
d. Under strict supervision scuba diving can be a fun and enjoyable sport for some epileptics
e. All of the above

57. For individuals with mobility impairments, such as paraplegics and amputees, certain skills must be well developed to ensure safe comfortable diving. Good examples of HSA Physical Performance Requirements that best insure this are:
a. Swim proficiently at the surface and underwater using techniques best suited to the individual
b. Control descents and be able to stop and hover in mid-water at any time
c. Turnover at the surface while breathing through a snorkel and/or regulator from the prone to the back to the prone
d. Inflate a buoyancy control device, both orally and with a low-pressure inflator at the surface and underwater
e. All of the above

58. Descents for the blind and mobility-impaired diver are usually complicated by an intensified fear of falling. Solutions to this problem may include:
a. Practice descents with and without a line
b. Buoyancy control exercises designed to control descents
c. Use of a descent line
d. Maintain contact, visual and physical
e. All of the above

59. The second phase in student evaluation is conducted in confined water using the Swim Evaluation. This helps reveal their aquatic skill levels in the following ways:
a. Swimming ability, endurance, response to stress and fatigue, comfort level at the surface and underwater
b. Their ability to relax in the water
c. Swimming ability, response to stress and fatigue, identifies those that are not motivated enough to become scuba divers
d. Motivation, swimming ability, ability to scuba dive, comfort level at the surface and underwater, endurance, response to stress and fatigue

60. Your student has completed five (5) scuba dives, but was unable to successfully challenge these standards: I.C. 28 (donor not completed), I.C. 36 (looking up not completed), & I.C. 42; II.C. 10, II.C. 28 (looking up not completed) & II.C. 31. What level of HSA Certification would the student diver receive?
a. Level A
b. Level B
c. Level C
d. Cannot be certified

PROCEDURES FOR ACTIVITIES ENROLLMENT
Instructor Training Course

INSTRUCTOR TRAINING COURSE CANDIDATES
(Instructor, Assistant Instructor and Dive Master)

Enrolling into HSA Instructor Training Course requires the follow forms to be completed. Dive Buddy Candidates forms are in the Dive Buddy Manual (pages 61 - 67).

7. HSA INSTRUCTOR TRAINING APPLICATION & TRAINING SUMMERY:
    a. Top, Instructor Training Course Candidates fill in Candidates information, read, sign and date it on Candidates Signature line.
    b. Bottom, Training Summary. Course Director, upon completion of the HSA Instructor Training Course fill in all the information asked for, print your name and member number then Sign and date it.

NOTE: Divers with Disabilities have different concerns; read carefully this is the *Beginning of Training*.

8. HSA GUIDELINES FOR SAFE DIVING: Instructor Training Course Candidates read and initial each of the guidelines, sign and date it.
9. HSA INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES FORM: Instructor Training Course Candidates read and sign this form.
10. HSA LIABILITY AND EXPRESS ASSUMPTION OF RISK FORM: Instructor Training Course Candidates read it carefully, fill in all the blanks, sign and date it.
11. HSA MEDICAL HISTORY FORM: Instructor Training Course Candidates fill in personal information and answer the Medical History Questionnaire. If the response is positive to any of the conditions listed a physical examination and approval for diving by a Medical Doctor is required.
    a. MEDICAL EXAMINATION: If the Instructor Training Course Candidate has had a Medical Examination within Two Years of the finishing date of the HSA Instructor Training Course they are enrolled in, that serves as a valid medical examination and approval for diving.
12. Course Director, these forms are available on the Download Page
    a. ITC Enrollment Forms & DBC Enrollment Forms

COURSE DIRECTOR
PROCEDURES FOR REGISTERING NEW MEMBERS

Go to the HSA Website, www.hsascuba.com, and login. In the Quick Links box on the right click-on 'Register New Member' and follow the instructions. If you have problems contact Jim Gatacre, at hsa@hsascuba.com .

You must purchase 1 Instructor Kit (Manual & Open Water Scuba Diver Training Slates), paper or electronic manual, for each Instructor Training Course Candidate and Dive Buddy Candidate (Manual). You will be given a 'manual credit' for each Instructor & Dive Buddy Kit that will allow you to register your Instructor Course and Dive Buddy Course Candidates.
There is 'also' a Registration fee for each candidate that you can pay when you register them, or you can purchase 'registration credits' in advance from the HSA Store. When logged into your file the HSA Store is located in the 'Training Materials' dropdown menu, upper left.

Instructor Training Course Application

Participant's Name: _____ **Birth Date**: _____/_____/_____

First Middle Family Month Day Year

Address: _____

City: _____

State: _____ Zip Code: _____ Country: _____

Contact Telephone Number: _____

Email: _____ Web Site: _____

LEVEL OF CERTIFICATION: [ ] INSTRUCTOR [ ] ASSISTANT INSTRUCTOR [ ] DIVE MASTER

Diver Training Agency _____ Member Number _____ Date Issued _____

TEACHING STATUS: *LIABILITY INSURANCE REQUIRED*
Financial Responsibility Requirements for 'HSA Teaching Status' is established when you name the Handicapped Scuba Association as an Additional Insured under your PROFESSIONAL UNDERWATER LIABILITY INSURANCE. You will be assigned 'Active Status' until you go to the HSA website, login and 'Update your Insurance'. You will receive instructions in your welcome email.

SEARCHABLE DATABASE:
To facilitate people with disabilities in finding appropriate Dive Professionals, you will be listed on the HSA Website in our searchable data base. Your name, photograph, city, state, country, contact telephone number, email and website will be displayed in searches. If you wish to be removed please contact HSA at webmaster@hsascuba.com

Participant's Signature _____ Date ____/_____/_____

HSA COURSE DIRECTOR USE ONLY

Training Summary
(Keep in your files for 7 years)

ITC/DBC Dates: Lecture _____ Pool _____ Open Water _____

Open Water Location: _____ Depth: _____ [ ] Beach [ ] Boat

Comments: _____ ITC Exam Score: _____%

I certify that the above named candidate has satisfactorily completed all Academic, Confined and Open Water training as required by HSA Instructor Training Course standards to be certified as an HSA Instructor, Assistant Instructor or Dive Master.

HSA Course Director Name & Member Number: _____

HSA Course Director Signature: _____Date _____/_____/____

HSA GUIDELINES FOR SAFE SCUBA DIVING

These guidelines are to be read, understood and signed-off by each participant at the end of their training. Each participant will receive a copy. The signed the original copy for each participant must be kept in the instructor's files for seven years.

As a student of SCUBA Diving taught by an HSA Trained Instructor, you have received the best training available in the industry today. HSA wants to do our best to insure that you will have many years of safe, comfortable and enjoyable SCUBA DIVING. So take your time and read each of the GUIDELINES FOR SAFE DIVING, and when you are sure that you UNDERSTAND each guideline, place your initial in the space provided. If you have any questions, be sure to ask YOUR instructor, who will be happy to answer them.

1. Maintain good mental and physical fitness for diving. Dive only when feeling well. Never dive while under the influence of alcohol, drugs or medication. Get a regular, yearly medical examination for diving.

   Initials: _____

2. Stay proficient in diving skills, log your dives and attempt to make at least twelve (12) dives per year. Strive to increase your diving skills through continuing education and review them in a controlled environment (a pool) after inactivity in diving.

   Initials: _____

3. Use correct, complete, well-maintained equipment with which you are familiar and inspect it for correct fit and function prior to each dive. Always use a buoyancy control device equipped with a low pressure inflation system, a submersible pressure gauge, alternate air source and depth gauge when SCUBA diving. The use of a compass is highly recommended. Do not loan your equipment to a non-certified diver.

   Initials: _____

4. Know the limitations of yourself, your dive buddy(ies) and your equipment and spend time discussing your diving needs with a new dive buddy(ies). Always buddy dive and know each other's equipment.

   Initials: _____

5. Always plan your dive and dive your plan. Discuss dive duration, hand signals, emergency procedures such as sharing air, and the location and use of your alternate air sources. If separated from your buddy search for 1 minute, then return to the surface.

   Initials: _____

6. Dive only according to "YOUR LEVEL" of certification. As a Level "A" diver you will dive with ONE dive buddy certified Open Water Level "A" or above. As a Level "B" diver you will dive with TWO dive buddies certified Open Water Level "A" or above. As a Level "C" diver you will dive with TWO dive buddies, one certified, at a minimum, as a Rescue Diver. In most cases an Instructor, Dive Master or HSA Open Water Dive Buddy. The other buddy will be certified Open Water Level "A" or above.

   Initials: _____

7. Know your diving location. Use good judgment and common sense in planning each dive, set moderate limits for depth and time in the water and avoid dangerous places or poor diving conditions. Only engage in diving activities consistent with your training and experience. **Do not exceed the depth you are trained in without further training.**

   Initials: _____

8. Be prepared to ditch your weight belt, make an emergency ascent, clear your mask or mouthpiece or take any other emergency action needed. Discuss emergency procedures with your dive buddies before each dive. In an emergency, STOP-THINK–GET CONTROL, then take action.

   Initials: _____

9. Control Your Buoyancy! Adjust weighting for neutral buoyancy, maintain neutral buoyancy during descent, while underwater and during ascent. Be buoyant at the surface and keep the regulator mouthpiece in your mouth until you are buoyant. Make sure weights are clear for easy removal to establish buoyancy at the surface or underwater, in case of distress while diving.

   Initials: _____

10. Get out of the water if you are cold, tired, injured, low on air or in anyway not feeling well. If any abnormality persists after diving, get medical attention.

    Initials: _____

11. Never breath-hold or skip-breathe when breathing compressed air; breathe continuously throughout a SCUBA dive. Avoid hyperventilation before a skin dive. Do not overexert, and know your limits. Be sure to equalize pressure early and often during descents.

    Initials: _____

12. Be proficient in dive table and/or dive computer use, decompression and emergency procedures. Make all dives no-decompression dives and always allow a margin of safety by staying well within the no-decompression limits. Have a means to monitor depth and time while underwater and ascend at a rate of 30 feet /9m per minute or slower. Always decompress at 15 ft/5m for three (3) minutes after every scuba dive. Allow at least 24 hours after a dive before flying or increasing your altitude.

    Initials: _____

13. Use a boat or float as a surface station whenever this will increase the safety of the dive. Fly the diver-down flag and surface close to the boat or surface station, while watching and listening for possible hazards. Never use SCUBA to skim just under the surface, you cannot be seen by passing boats or other divers.

    Initials: _____

14. Be aware of current changes during the dive, use natural clues such as seaweed or look for current lines trailed behind the boat at the surface. Always plan your dive into the current, then at the end of the dive you can return with the current.

    Initials: _____

15. When boat diving, select a licensed boat that is fully equipped with the required safety equipment and Oxygen. Only sign up for trip destinations that are consistent with your training and experience. Plan your dive to end with a sufficient reserve of air to return to the boat while still under water.

    Initials: _____

16. Beware of sunburn even on overcast days, abrasions and tissue breakdown on hard surfaces while diving and after being in the water.

    Initials: _____

17. As an HSA Open Water Dive Buddy for someone who is dependent upon you for diving, always be certain that you and your equipment are fit for diving. Never buddy assist a diver if for any reason you are uncomfortable with your equipment, yourself or the diver. Always use the three (3) person buddy system when diving with a Level B or Level C diver. Thoroughly understand the equipment and capabilities of both the diver you are assisting and your secondary dive buddy. Plan your dive to be safe and comfortable for EVERY member of the dive team.

    Initials: _____

I have read and understand the above HSA GUIDELINES FOR SAFE DIVING and agree to always conduct my diving according to them.

_____

Participant's Name Print

_____

Participant's Signature Date

HSA INTERNATIONAL

INHERENT HAZARDS & RISKS FORM

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

HSA COURSE DIRECTOR'S NAME _____ HSA MEMBER # _____

INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES
READ & SIGN BEFORE COMPLETING THE HSA LIABILITY RELEASE

To SCUBA DIVE safely you need to know a few basic rules & procedures that are very IMPORTANT because you are in and under the water, in the sun, around hard surfaces, and breathing compressed air. These safety rules and procedures will be covered in detail during your training course.

a. Breathe: This is the first rule, and it is completely up to you. It is very easy, you just breathe all the time, but it is the MOST IMPORTANT thing you will have to do. If you hold your breath you can rupture your lungs, which is VERY SERIOUS! This is called an Air Embolism and it can cause very serious injuries, even death.
b. Ears: Your ears may experience some pressure, or even hurt, when you descend underwater. This is normal, and you have probably already experienced this pressure in your ears if you have dove underwater, flown in an airplane, or driven in the mountains. You must 'equalize' this pressure, if you cannot it can cause damage to your ears and sinuses.
c. Sun: Wear sunscreen, you will burn easier around water, even if it is overcast!
d. Thermoregulation: Have water and shade available to avoid overheating.
e. Protective clothing: Keep your legs and feet covered. The pool and open water environments have hard and abrasive surfaces that can cause abrasions and tissue breakdown for people with reduced circulation.
f. Dive Duration: Because you are breathing compressed air underwater your body fluids and tissues absorb more nitrogen than at sea level. This build-up of nitrogen can cause decompression sickness (DCS). DCS can result in from mild to very serious injuries, even death. To avoid this we have 'no decompression limits' set for the time one can spend at various depths, making it easy to avoid.
g. Hard Surfaces: Place padding, such as an exercise mat or towel, on pool and boat deck surfaces, and on other hard surfaces, to protect the skin, if needed.
h. Transfer from your wheelchair: Be sure to tell those assisting your transfer what method you use, and then have them explain what they intend to do before they assist you. Have them lift your legs (not drag them) at the knee, so that your legs bend naturally. Be sure to tell them if you have poor balance and to provide support until you are stable.
i. Ascend: Swim slowly, 30 feet/minute, to the surface. Do NOT use a Buoyancy Control Devise (BCD) to ascend, swim to the surface, when your head breaks the surface, inflate the BCD, and attain positive buoyancy and comfort at the surface BEFORE removing your regulator. Swimming too fast to the surface can cause an Air Embolism, which is very serious.
j. Exit the water: Remove your weights, then Scuba unit. Be sure you have in-water and surface support. Exit the water, with assistance if necessary. Your in-water assistant will support your legs during the exit.
k. Recompression Chamber: A recompression chamber is needed to treat various diving related injuries, primarily Decompression Sickness and Air Embolism.

Participant's Signature: _____ Date: _____

HSA INTERNATIONAL

LIABILITY RELEASE AND EXPRESS ASSUMPTION OF RISK AGREEMENT

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

HSA COURSE DIRECTOR'S NAME _____ HSA MEMBER # _____

PLEASE READ CAREFULLY, ASK QUESTIONS IF NECESSARY, AND FILL IN ALL THE BLANKS BEFORE SIGNING.
CAUTION: READ & SIGN 'INHERENT HAZARDS & RISKS OF DIVING ACTIVITIES' BEFORE SIGNING THIS FORM.

I, _____, herby affirm and acknowledge that I am aware of the inherent hazards and risks of Snorkeling, Skin diving and Scuba Diving (hereinafter referred to as 'diving activities'). I fully understand that these risks can lead to severe injury and even death.

I understand that diving with compressed air involves risks of decompression sickness, embolism or other hyperbaric injuries that require treatment in a recompression chamber. I further understand that these diving activities may be conducted at sites that are remote by time and distance from a recompression chamber. Additionally, I understand that there are also risks involved with dive travel, including, but not limited to, dive boat accidents, and traveling to and from the dive sites. Nevertheless, I choose to proceed with such diving activities and I freely accept and expressly assume all risks, dangers and hazards that may arise from such diving activities which could result in injury, loss of life and property damage to me.

I understand and agree that neither the professional staff of _____, nor the facility _____, nor others _____, nor the Handicapped Scuba Association, nor its affiliate and subsidiary corporations, nor any of their respective employees, officers, agents or assigns, and volunteers, (hereinafter referred to as 'Released Parties') may be held liable or responsible in any way for the injury, death, or other damages to me or my family, heirs, or assigns that may occur as a result of my participation in these diving activities, or as a result of the negligence of any party, including the Released Parties, whether passive or active.

In consideration of being allowed to participate in these diving activities, as well as the use of any facilities and the use of equipment, I hereby personally assume all risks in connection with said diving activities, for any harm, injury or damage that may befall me while I am participating, including all risks connected therewith, whether foreseen or unforeseen.

I further save and hold harmless said diving activities and Released Parties from any claim or lawsuit by me, my family, estate, heirs, or assigns, arising out of my participation in these diving activities including claims arising during or after the diving activities.

I also understand that snorkeling, skin diving and scuba diving are physically strenuous activities and that I will be exerting myself during the diving activities, and that if I am injured as a result of, but not limited to, a heart attack, panic, or hyperventilation, that I expressly assume the risk of said injuries and that I will not hold the Released Parties responsible for the same.

I hereby declare that I am of legal age and competent to sign this agreement or, if not, that my parent or guardian shall sign on my behalf, and that my parent or guardian is in complete understanding and concurrence with this agreement.

I hereby state and agree that this agreement will be effective for all diving activities in which I participate until revoked in writing by the Released Parties.

I have read and understand this agreement, and agree to be bound by it.

Signature of Participant _____ Date _____/ _____/ _____

HSA INTERNATIONAL
MEDICAL HISTORY FORM

PARTICIPANT'S NAME _____ BIRTH DATE _____ / _____ / _____
FIRST MIDDLE LAST MONTH DAY YEAR

ADDRESS _____

CITY/STATE/PROVINCE _____ POSTAL CODE _____

COUNTRY _____ TELEPHONE _____ EMAIL _____

COURSE DIRECTOR'S NAME _____ HSA MEMBER NUMBER _____

Medical History Questionnaire

The purpose of this questionnaire is to determine if you should be examined by a doctor prior to participating in a diver-training course. A positive response to a question does not necessarily disqualify you; it simply means you must seek approval from a doctor before engaging in diving activities. Please answer the following questions Yes or No.

____ Do you take prescription medication?
____ Are you currently receiving medical care?
____ Are you, or could you be, Pregnant?
____ Do you currently smoke tobacco?
____ Do you have high cholesterol?
____ Asthma or wheezing with exercise
____ Seizure disorder, epilepsy or convulsions?
____ Frequent colds, sinusitis or bronchitis?
____ Severe hay fever or allergy?
____ Pneumothorax, collapsed lung?
____ Lung disease?
____ Chest disease or chest surgery?
____ Blackouts or fainting (loss of consciousness)?
____ Diabetes mellitus, even if controlled by diet?
____ Recurring Ear or Sinus problems?
____ Sinus surgery?
____ Ear surgery, loss of hearing or balance?
____ Recurring Headaches or Migraines?
____ Decompression sickness or diving accident?
____ Hernia?
____ Behavioral health, mental or psychological? (Anxiety attacks, fear of open/ closed spaces)
____ Heart disease?
____ Angina, Heart or Blood Vessel surgery?
____ Family history of heart attack or stroke?
____ High blood pressure?
____ High blood pressure medication?
____ Bleeding or other blood disorders?
____ Ulcers or ulcer surgery?
____ Recurring Back problems?
____ Back or spinal surgery?
____ Frequent Motion sickness?
____ Head injury with loss of consciousness?
____ Drug or alcohol treatment in past 5 years?
____ Tracheotomy?
____ Colostomy or ileostomy?
____ Medically treated for dysentery or dehydration?
____ Have you been diagnosed with COVID-19?

I agree to accept responsibility for omissions regarding my failure to disclose any existing or past health condition.

Participant's Signature Date Signature of Parent or Guardian Date

PHYSICIAN

This person has applied for training, or is currently certified to engage in the sport of Scuba Diving. Based on a physical examination, your opinion of the applicants Medical Fitness for scuba diving is requested.

____ I find no Medical conditions that I consider incompatible with Scuba Diving.

____ I am UNABLE to recommend this person for Scuba Diving.

Remarks _____

_____, M.D. Date of Medical Exam ____/ ____ / _____
Physician's Signature

Physician Name _____ Telephone/email _____

Address _____ City _____ State ____ Postal Code _____