Currents

SCUBA EDUCATORS INTERNATIONAL®

PDIC INTERNATIONAL®

Quarterly Journal: October 2015, Vol. 9, No. 4

In this issue:

Above: A surf scoter covered in oil; https://en.wikipedia.org/wiki/Oil_spill

The Power of Education

"Education is the most powerful weapon which you can use to change the world."
— Nelson Mandela

We at the SEI & PDIC offices feel strongly that a full scuba education truly can make a difference – not just in scuba diving abilities, but in life.

Scuba diving is an added benefit for many careers such as criminal justice, biology and natural resources. Students who are taught the 'whys' along with the 'hows', are given the opportunity to practice skills to develop proficiency, and understand the importance of being healthy for diving develops a solid foundation. Building on this foundation results in more confident and competent divers, who become lifelong divers reinforcing invaluable internal motivators, such as self confidence and problem solving skills. People with knowledge and skills can change the world.

The Power of One

"Education is learning what you didn't even know you didn't know."— Daniel J. Boorstin

University and organizations perform studies to collect data and tract trends. Much of this work is performed by volunteers. Surveys for determining if an invasive species is gaining a stronghold over native species to the impact discarded refuse has on wildlife, can shed light and educate others as to what is happening in the world around them. Knowledge can inspire anyone to be more proactive in doing a little better to help Mother Nature.

Sometimes all it takes is one person to see a need and step up. One such example – Mother Teresa – she saw a need in Calcutta, India and began to help one person at a time. She has inspired immeasurable numbers of people around the world to reach out and help the less fortunate. Other times many hands are needed to share the workload – and with everyone doing just a little bit – a whole lot is accomplished.

Whether you are choosing to lead a conservation project for a coastal cleanup or you see a piece of litter on the ground which you pick up and discard in the waste receptacle as you walk from your car into the office – every bit helps. It takes everyone. You can make a difference. There are numerous causes to get behind and countless animal varieties that pull at the heartstrings – share with us your passions and interests in helping our environment.

SCUBA NEWS

A West Indian Manatee, a member of Order Sirenia in Florida waters. By U.S. Department of the Interior, U.S. Geological Survey [Public domain], via Wikimedia Commons. *https://commons.wikimedia.org/wiki/File:FL_fig04.jpg*

2016 Renewals Due Now

Click on the form below to be directed to your 2016 Renewal Form. Pages shown below are of page 2 for each of the renewal forms. Complete and return by December 31, 2015

www.seidiving.org
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765.281.0600

www.pdic-intl.com
info@pdic-intl.com
765.281.0133

National Days and Events

OCTOBER

8 World Octopus Day
24 National Make a Difference Day
http://makeadifferenceday.com/
24 United Nations Day

NOVEMBER

Manatee Awarness Month
1 Extra Mile Day
3 Jellyfish Day
4-7 DEMA Show 2015 (see below)
15 National Philanthropy Day
11-17 World Kindness Week
13 World Kindness Day

DECEMBER

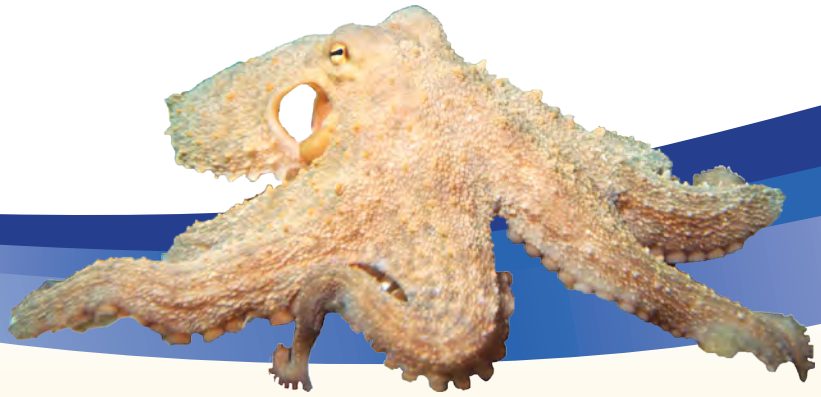
1 National Day of Giving
http://www.givingtuesday.org/
4 World Wildlife Conservation Day

DEMA SHOW 2015 • November 4-7

Orange County Convention Center South Hall • Orlando, Florida, USA
http://www.demashow.com/dema2015/public/enter.aspx

We will not be holding an SEI & PDIC Leadership Meeting. Instead we are scheduling one on one meetings with either Tom Leaird, CEO, or Thadeus Bowden, Executive Director. Stop by booth 1621 and say hello. We look forward to seeing many of you there.

A Closer Look



Jellyfish

Characteristics:

- live in the sea and are found in all oceans. Some live in fresh water.
- can be large (up to 7 ft bells – tentacles spread even more) and brightly colored or they can be transparent (see-through) or translucent. Some can be very hard to see, nearly invisible to the human eye (as small as 1 millimeter).
- are not fish and do not have brains.
- travel in groups called a 'bloom', 'swarm' or 'smack'. Large blooms can feature over 100,000 jellyfish.
- are carnivorous, feeding on plankton, crustaceans, fish eggs, small fish and other jellyfish.
- are eaten by other species of jellyfish, tuna, shark, swordfish and sea turtles.

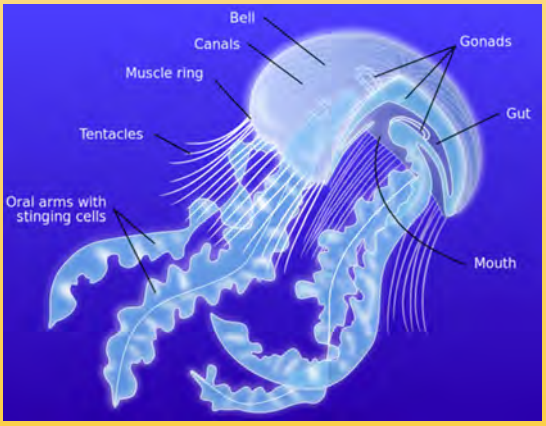
Defenses:

- use their tentacles to sting using nematocysts. Most are harmless to humans but stings from some species, such as the box jellyfish, can be very painful and sometimes kill.

Lifespan:

- life spans typically range from a few hours (in the case of some very small hydromedusae) to several months. Life generally ends after spawning.

http://www.sciencekids.co.n2/sciencefacts/animals/jellyfish.html and https://en.wikipedia.org/wiki/Jellyfish



Jellyfish

https://en.wikipedia.org/wiki/Jellyfish#/media/File:Anatomy_of_a_jellyfish-en.svg

Octopus *https://commons.wikimedia.org/wiki/File:Octopus2.jpg*

Characteristics:

- are around 300 species of octopus, usually located in tropical and temperate ocean waters. They are divided into finned deep-sea varieties that live on the ocean floor and finless, shallow water varieties found around coral reefs.
- have two eyes in a globe-shaped head (mantle) off which protrude eight long limbs called tentacles that have two rows of sucker senses.
- have very good eyesight and an excellent sense of touch.
- have three hearts.
- have a hard beak, like a parrot beak, which they use to break into and eat their pray such as crabs and shellfish.
- can squeeze into tight spaces as they are invertebrates which means they have no skeleton, (some species have a protective casing in their mantles).
- are believed to be highly intelligent compared to other invertebrates.

Defenses:

- their main defense against predators such as sharks is to hide and camouflage itself by using certain skin cells to change its color. This can also be used to talk with or warn other octopuses.
- another defense is to make a fast escape. an octopus can eject a thick, blackish ink in a large cloud to distract the predator while it then uses a siphon jet propulsion system to quickly swim away headfirst, with arms trailing behind.
- a last ditch defense is for the octopus to shed a tentacle similar to how a gecko or lizard can discard a tale. An octopus is able to regenerate a lost tentacle.

Mating:

- a female octopus can lay on average about 200,000 eggs, however, fending for themselves only a handful of the hatchlings will survive to adulthood.

Lifespan:

- an average lifespan for an octopus is 6-18 months. Males only live a few months after mating, and females die of starvation shortly after their protected eggs hatch.

http://www.sciencekids.co.nz/sciencefacts/animals/octopus.html and https://en.wikipedia.org/wiki/Octopus

Teaching Scuba in a University

Tom Leaird, SEI & PDIC CEO and Course Director and Carol Reed, SEI & PDIC Instructor Trainer, Indiana

If you are fortunate to have a university near your home, you have an opportunity to offer a scuba program there. The SEI and PDIC programs are especially well-adapted to teach in that environment. Our "full education" philosophy fits the normally longer course requirements, and can be expanded to a higher level, especially where the course is for academic credit.

There are two opportunities for scuba programs at the university level. First, the program can be offered through the aquatic department where students completing the course receive, in addition to scuba certification, academic credit towards graduation. Secondly, the program can be offered through a recreational department where no credit is offered. One of the biggest benefits to utilizing these entities – not having to pay pool rental fees!

In a semester program offering the course for academic credit, there are class contact hour requirements depending on the amount of credit hours issued. Our 32 hour SEI Open Water course can be expanded to as much as 40 to 45 contact hours. This allows the instructor to expand on certain topics, such as putting more detail into physics and physiology topics in order to "bring it up" to a university cognitive level of understanding. Typical credit hours range from 1 to 2 credits. If you meet 4 hours per week for the whole semester, you can easily award 2 credit hours for the course.

Each instructor should consult with the prospective university to learn requirements.

Preparing to exit the water, photo by Carol Reed. Above inset photo: pool side training, photo by Tom Leaird.

Ball State University, photo by Carol Reed.

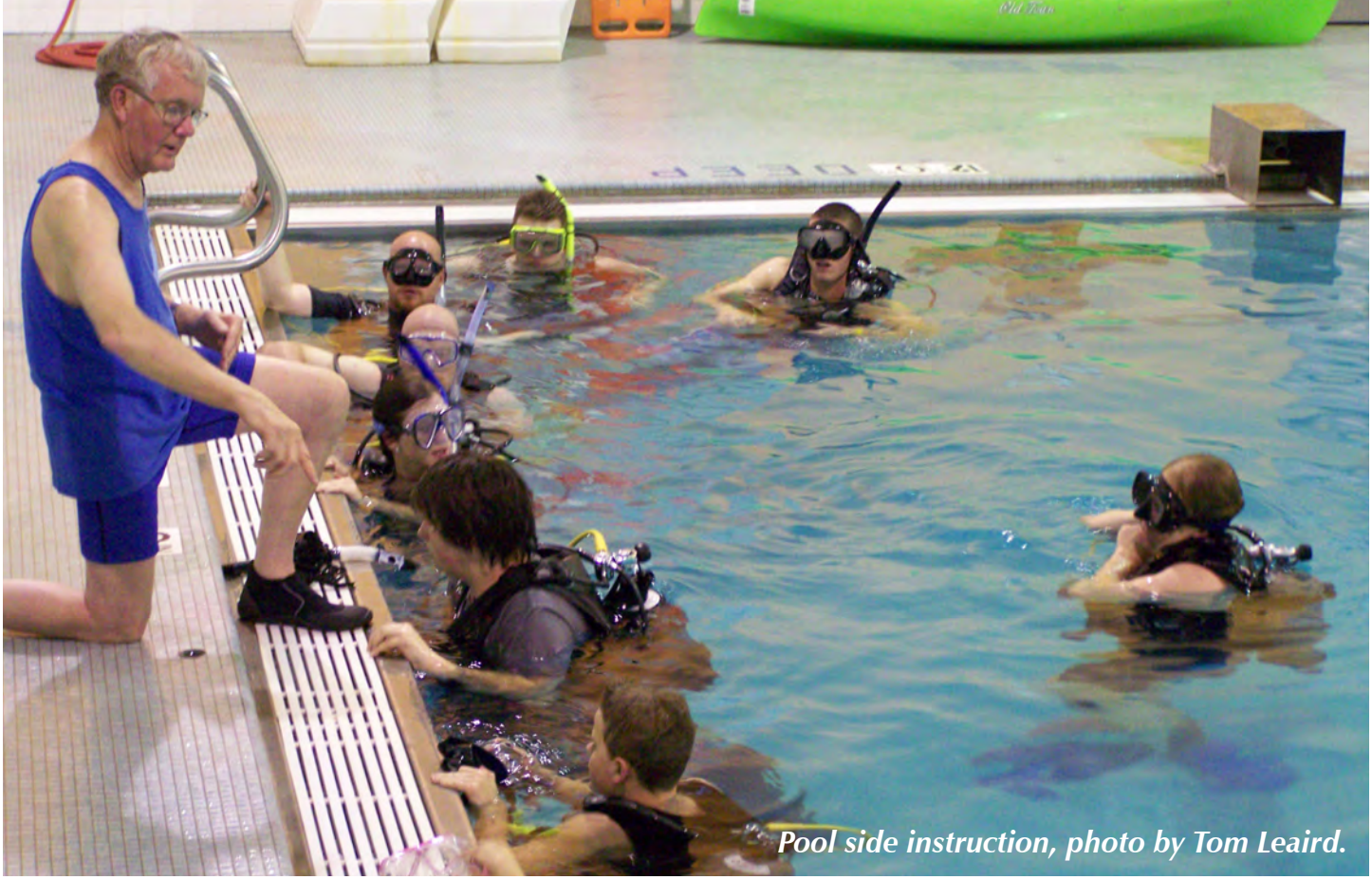
The requirements may vary depending on whether the program is academically or recreationally focused. Academic programs will likely have stricter standards. Some academic programs for university credit courses require the scuba instructor to have at least a Masters level education to teach the academic scuba course while some recreational programs may hire an instructor on an adjunct or contract basis.

In Muncie, Indiana, USA, where our SEI & PDIC office is located, Ball State University offers courses at the Open Water and Advanced levels that include classroom and pool training for academic credit. The course does include all skills necessary to earn certification, but the grade does not require students to obtain certification. If you have a local dive center to support your program and supply equipment, you will find that most of your students will be eager to complete all requirements that lead to scuba certification.

Once the SEI & PDIC Open Water diver program has been established, students often ask what course they can take next. Since 1996, Ball State University aquatics program has offered an academic course each fall semester called "Advanced/Rescue Scuba". This course attracts anywhere from 12 to 20 students. Certifications in Advanced Level 3, DRAM, and DAN Oxygen Administration, can be earned in one semester upon completion of all requirements. Fitting all of this into one semester really can be done. Contact our SEI & PDIC office for a sample schedule and other supporting materials, including academic level exams for both Advanced Level 3 and DRAM.

In addition, the Ball State University aquatics program offers a scuba minor which includes an internship of three credit-hours toward graduation. Those interns can assist and learn at our local dive center as well as help in teaching the various courses offered. The interns are not paid but receive many perks that include free use of rental equipment, reduced or free specialty and leadership training and more.

Lastly, a Divemaster course is offered both during fall and spring semesters at our local dive center, and usually attracts between five and seven students. Divers wishing to become divemasters are challenged to gain enough dive experience early in their time at the



Pool side instruction, photo by Tom Leaird.

university to complete prerequisites necessary for certification as Divemaster. As mentioned earlier, keeping interns involved assisting with open water dive classes and offering use of free gear for diving will assist them in completing prerequisite dives. The divemaster program is taught and handled entirely through the dive center with course credit given at the university after certification.

If an academic department cannot offer courses for various reasons, such as funding or demand issues, consider a non-credit scuba course if the university has a recreational department. Offering a program in this environment has all the challenges similar to teaching at a local YMCA or other aquatic center. Gaining a contract to offer a non-credit course may occur through a bidding process. Class size will depend on many aspects including size of the university, presence of local competition, and demand for the program. At Ball State University, within the recreation department is an entity called Outdoor Pursuits. Our dive center offers a scuba course at the Open Water Diver level that is similar and competitive to the one offered through the local YMCA. No course credit is offered and no internships are included. However, interns in the academic aquatic program can be utilized as assistants in the Outdoor Pursuits courses.

If you are interested in more information about these programs, contact SEI & PDIC headquarters with questions and Tom Leaird or Carol Reed will respond with any information you desire.

Look at the big picture and beyond the physical education/aquatics/recreation programs in your university. In some cases, other departments may have the need for scuba training programs. These might include Criminal Justice, Biology, Limnology, Natural Resources, Ocean Sciences, and Anthropology where a scuba education and certification would make the student more marketable upon graduation.

Regardless of what department offers the course, in all cases, the support of a dive center is needed to provide the resources required. These include scuba equipment, air fills, sale of mask, snorkel, fins and other gear. Large university scuba programs may own part or all of the support equipment and even provide repair services. Others depend on the support of a dive center.

Putting on scuba, photo by Carol Reed.

In this author's opinion, working with a dive center is the easiest method of obtaining gear and other support. At Ball State, all equipment requirements are provided by our local dive center. For the Open Water Diver course, mask, snorkel and fins are provided for the first two or three pool sessions and students are encouraged to purchase these very personal items thereafter. Full scuba equipment for each student is delivered (often by one of the interns) for each water session. When it's time for the open water portion of the program, students come to the dive center, pay a fee, sign waivers, and pick up the assigned gear. Air cylinders are delivered in the dive center van as needed. The local quarry is only ten minutes from the dive center which is adjacent to the university, making it very convenient for the students as well as the instructors and staff.

So, are you looking for a place to teach our wonderful sport, or looking to expand your program? If your local university has a pool, there is a good chance they would be interested in our program. You have an unlimited supply of students to bring into our sport. Each year a new crop of freshmen arrive. In addition, many employees of the university take advantage of our programs. We in Muncie have a long history of working at the university level and are anxious to share our experiences with you. Just contact us!

Carol Reed *creed@bsu.edu*
Tom Leaird *tom.leaird@seidiving.org*

Left: Gear assembly, photo by Carol Reed.

The Value of a Full Education for Scuba Divers

Kenneth Wilhelm, SEI Instructor Trainer, Malaysia

From 1980 to 2015 we've seen the cost of living rise by 200%, and yet the cost of scuba courses has not only stayed nearly the same, but in real terms the cost of scuba courses has fallen. How have may scuba centers (dive shops) managed to stay open and conducting business? Obviously, the scuba industry (especially the retail/resort oriented businesses) has had to cut back on something over the years, in order to still offer scuba diving lessons. Many have opted to shorten the course by condensing academics and pool training. SEI & PDIC believes in a full education.

Scuba diving is a motor skill that requires knowledge to allow the student to enter the underwater environment — trained to work within the limitations of the equipment and the challenges of this 'pressured' realm.

It is safe to say that for the average recreational dive student (meaning non-competitive swimmer), a scuba course that provides less hours of water training results in a less skilled diver, than a course with more hours in the pool. A dive course with more classroom hours will do more to ensure that students have the needed foundation of knowledge to understand and recognize the limitations and dangers that exist in this unforgiving non-human environment.

Scuba equipment does not make a diver better…
BETTER TRAINING MAKES A BETTER DIVER.

* Using a Cumulative Inflation Calculator: *http://inflationdata.com/Inflation/Inflation_Calculators/Cumulative_Inflation_Calculator.aspx*

FACTS:

- Humans are not physically adapted to breathe underwater without needing specialized equipment to meet our oxygen requirements
- In addition to not providing humans with oxygen, the underwater environment presents challenges (dangers) that we do not encounter on land
- A certain amount of academic theory or knowledge is necessary for the safe conduct of activities in this environment

Pool instruction, photo by Tom Leaird.

The Importance of Being Healthy for Your Next Dive

Jupesi "José" González, SEI Divemaster & EMT-B

Why might you, as a scuba diver, ask is this an important topic to discuss? Scuba divers have been known to go on scheduled dives only to wind up ending it soon after entering the water or finishing the dive with an injury.

Diving can be strenuous so making sure that you are 100% healthy prior to your next scheduled dive is not only crucial for you, but for those who dive with you. Going on dives with any type of illness or injury, no matter how minor you think it is, has risks. One excellent source for information on diving and medical issues is Divers Alert Network (DAN). *http://www.diversalertnetwork.org/health/.*

DAN has numerous articles including frequently asked questions covering a number of ailments and topics as well as medically trained individuals in office to answer questions.

Divers need to know it is okay to back out of or cancel a dive if they feel under the weather or out of their comfort zone as to the necessary skill needed for a given dive – whether it is the first dive of the day or a later dive in a multiple day dive trip. Feelings of guilt for spending money on a dive trip or for letting a buddy down can sway a diver to push ahead. This is where problems happen and accidents/ illnesses occur – and these are preventable.

Divers also need to be aware of what dive illnesses and injuries are so they can first recognize the

problem and second seek appropriate medical care. According to Daniel A. Nord from the Center for Disease Control and Prevention (CDC), "traveling divers can face a variety of medical challenges, but because dive injuries are generally rare, few clinicians are trained in their diagnosis and treatment. Therefore, the recreational diver must be able to recognize the signs of injury and find qualified dive medicine help when needed."

Diving ailments include but are not limited to ear and sinus illnesses, pulmonary barotraumas, decompression sickness, arterial gas embolisms, as well as psychological issues such as anxiety that may cause a diver to panic.

http://wwwnc.cdc.gov/travel/yellowbook/2016/the-pre-travel-consultation/scuba-diving

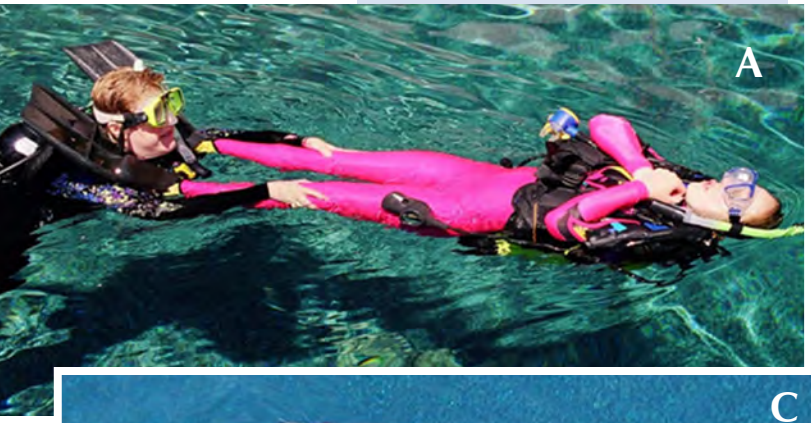
Below: Various types of diver recuse techniques. (Photos by Tom Leaird)

A – Foot Push

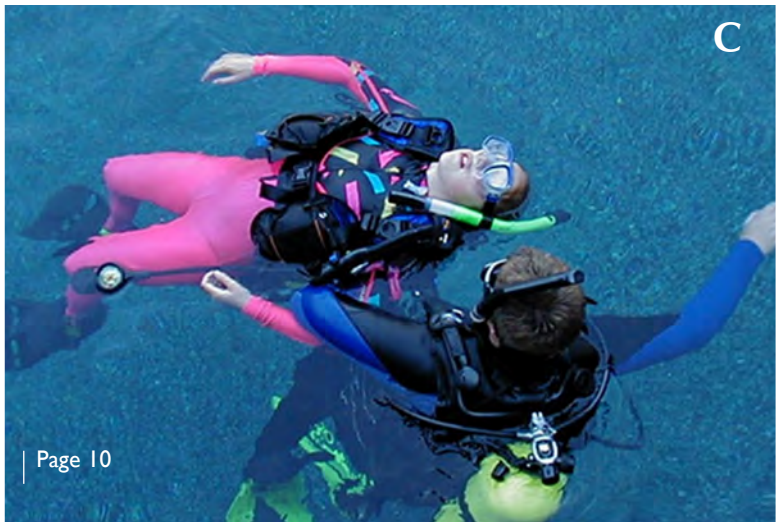
B – Spread Eagle

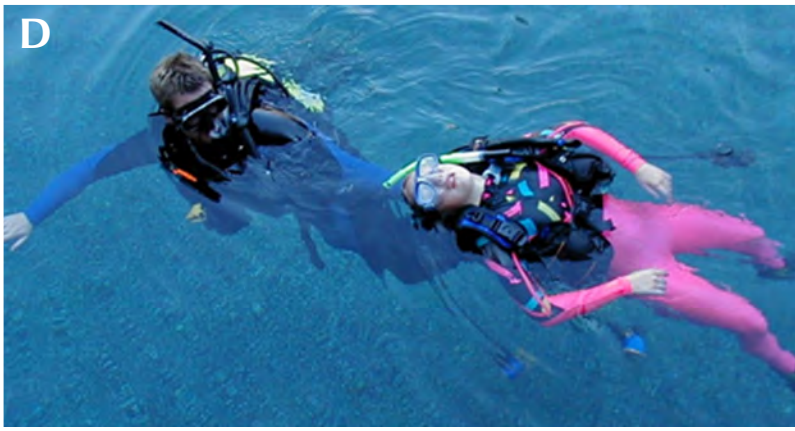
C – Do-Si-Do

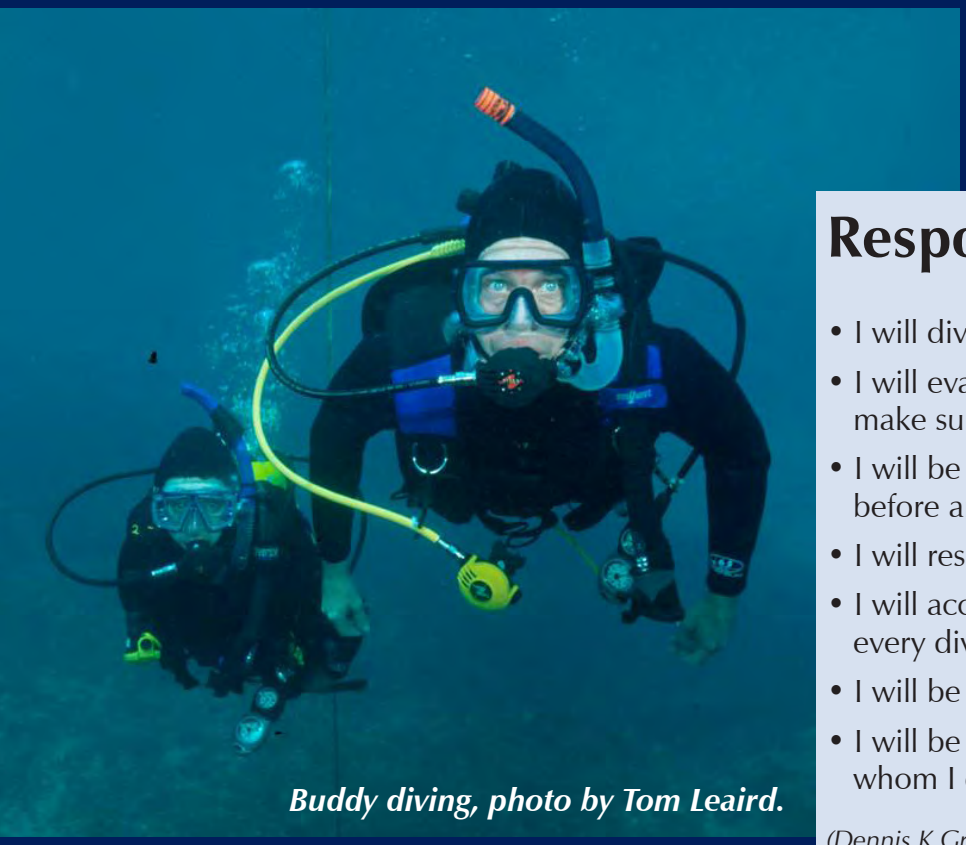
D – Equipment Tow



For additional guidance, you should see your primary medical provider to obtain your recommended annual physical as well as ask any questions pertaining to your current health so that you are physically fit for your next scheduled dive. This pertains to both Instructors and divers. Instructors need to be physically fit to be able to render aid to divers in their charge in the event of an emergency. If something were to happen to an Instructor while on a dive with students, students may not be trained in diver rescue, first aid, or oxygen provider – hence, the importance for the Instructor to be physically fit to dive. Recreational divers should dive conservatively and well within the no-decompression limits of their dive tables or computers and that diving is a skill that requires training and certification and should be done with a partner.







Buddy diving, photo by Tom Leaird.

Responsible Diver Code

- I will dive within the limits of my training and ability
- I will evaluate the conditions before every dive and make sure they fit my personal capabilities
- I will be familiar with and check my equipment before and during every dive
- I will respect the buddy system and its advantages
- I will accept responsibility for my own safety on every dive
- I will be environmentally conscious on every dive
- I will be responsible to myself, the people with whom I dive, and the environment

(Dennis K Graver, Scuba Diving 4th ed. (2010), Human Kinetics, Champaign, IL, p 8)

Fitness for Diving Implies

A Diver is:

- well rested
- well nourished
- qualified for the activity
- not apprehensive about the dive plan
- not goaded into doing something they are not prepared to do

A Diver does have:

- the physical strength and stamina to meet the requirements of the environment and the activity

A Diver does not

- allow pride to affect good judgment

(Dennis K Graver, *Scuba Diving 4th ed.* (2010), Human Kinetics, Champaign, IL, p 181)

Well Rested • ***Well Nourished*** • ***Physically Fit***

Involving Sport Divers in Local Conservation Projects

Dr. Heyward Mathews, SEI Instructor and
Cory Trier, SEI Divemaster, Florida

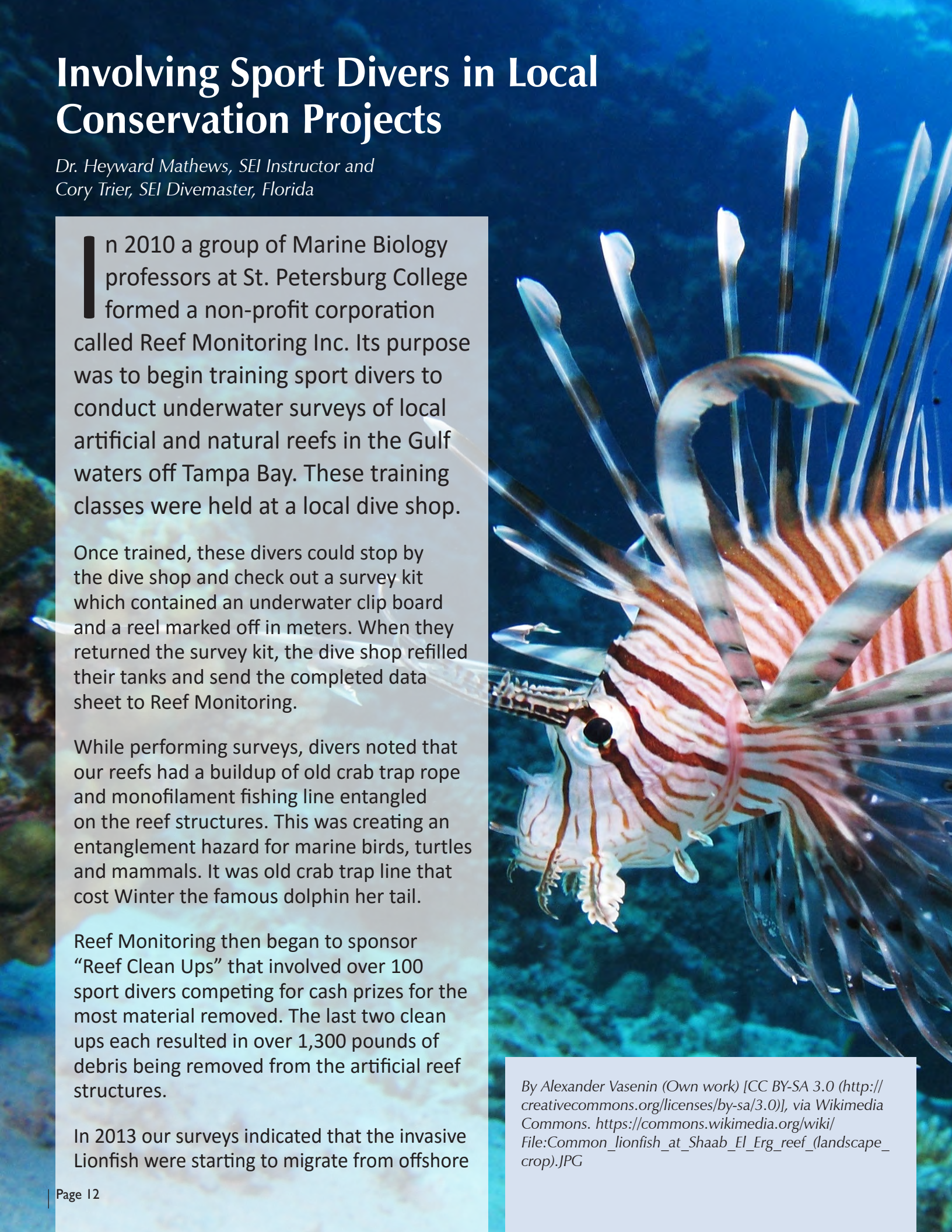
In 2010 a group of Marine Biology professors at St. Petersburg College formed a non-profit corporation called Reef Monitoring Inc. Its purpose was to begin training sport divers to conduct underwater surveys of local artificial and natural reefs in the Gulf waters off Tampa Bay. These training classes were held at a local dive shop.

Once trained, these divers could stop by the dive shop and check out a survey kit which contained an underwater clip board and a reel marked off in meters. When they returned the survey kit, the dive shop refilled their tanks and send the completed data sheet to Reef Monitoring.

While performing surveys, divers noted that our reefs had a buildup of old crab trap rope and monofilament fishing line entangled on the reef structures. This was creating an entanglement hazard for marine birds, turtles and mammals. It was old crab trap line that cost Winter the famous dolphin her tail.

Reef Monitoring then began to sponsor "Reef Clean Ups" that involved over 100 sport divers competing for cash prizes for the most material removed. The last two clean ups each resulted in over 1,300 pounds of debris being removed from the artificial reef structures.

In 2013 our surveys indicated that the invasive Lionfish were starting to migrate from offshore



By Alexander Vasenin (Own work) [CC BY-SA 3.0 (http://creativecommons.org/licenses/by-sa/3.0)], via Wikimedia Commons. https://commons.wikimedia.org/wiki/File:Common_lionfish_at_Shaab_El_Erg_reef_(landscape_crop).JPG

areas of the Gulf into near-shore reefs. Reef Monitoring started with a small Lionfish removal project that involved small number of sport divers and collected 64 Lionfish from five boats of divers. Then we put on a much larger project in September of 2014 in partnership with The Guy Harvey Outpost on St. Petersburg Beach. This turned out be a really large event with 92 divers and spectators attending. A total of 471 Lionfish from 16 boats of divers, were removed from Gulf waters and parts of the Lionfish were saved for ongoing research projects.

On September 12 and 13 of 2015, a second Guy Harvey Lionfish Safari was held with $2,200 in cash prizes for the most Lionfish turned in, the largest total weight turned in, and the largest and the smallest Lionfish. A total of 159 divers signed up for the two day event, with the dives going out into the Gulf on Saturday and then having the weigh-in on Sunday at the Guy Harvey Outpost on St. Petersburg Beach. Every diver who signed up for the event received an original Guy Harvey T-shirt with a Lionfish on the front and a pair of sheers to cut the fins

Dr Monica Lara collecting data on the Lionfish that are being processed by volunteers from St. Petersburg College.

Left: Brittany Barbara, Reef Monitoring board member removing the stomach to examine the stomach contents to get a better depiction of the feeding habits of Lionfish.

Right: Lionfish collected during the event range from 2.5 inches up to 15.8 inches. Here are some of the juveniles collected during the event.

off the fish before turning them over to our research crew. This event resulted in a total of 884 Lionfish from 12 boats. The smaller number of boats was due to adverse weather and sea conditions.

This increase in Lionfish collected from fewer divers is an indication that Lionfish populations are increasing rapidly and are threatening our local native reef fish populations.

Marine biology students from the St. Petersburg College Research Team were on hand to collect scientific data on the Lionfish. Professional chefs cooked the fish letting people sample Lionfish in an effort to help create a commercial market for Lionfish.

To try to combat this Lionfish population explosion, Florida conservation officials offered sport divers the option increasing their one day limit of spiny lobster from six to seven if they killed 10 Lionfish during 2015

Florida two day lobster season! On Florida's East Coast, some divers are now making a living spearing Lionfish, with the fillets selling for almost $20 a pound.

In our area, we have found many new divers are really excited about using their new diving shills in conservation efforts like reef clean ups and invasive species control. For more information about reef clean ups and Lionfish control projects contact Dr. Mathews at *mathewsh@spcollege.edu*.

Being Nature's Helping Hands

Disturbing images can be found of animals suffering because of reckless human actions – some willfully inflicted in cruelty, many from unintentional acts of carelessness, and some tragic accidents. Poachers have been known to illegally hunt and kill animals for various body parts, humans unintentionally leave debris or willfully discard trash that can injure wildlife, and entities have hazardous material spills polluting the natural habitat. While the actions of some lead to pain and suffering, many others step up to help correct those wrongs.

Recently a video swept through social media showing a research team working on extracting a straw from the nose of a male Olive Ridley sea turtle in Costa Rican waters. *Photo Right: http://www.dailymail.co.uk/news/article-3197604/The-agony-caused-just-one-piece-plastic-thrown-sea-Turtle-writhes-pain-drinking-straw-pulled-nose-ocean-researchers.html*

Sadly this is nothing new. In 1993, Peanut, a red-eared slider turtle, was found in Missouri, USA with a plastic 6-pack soda bottle ring constricting her middle. *http://www.dnr.state.mn.us/adoptriver/peanut.html*

Above Right: *https://www.google.com/maps/place/Clearwater+Marine+Aquarium/@28.2279305,-80.9903584,7z/data=!4m2!3m1!1s0x0:0x87f5727ae1aed713?hl=en-US*

And in 2005 in Mosquito Lagoon, near Cape Canaveral on the coast of Florida, Winter, a young bottle-nosed dolphin became entangled in a crab trap line which cut off circulation to her tail flukes requiring amputation. *http://www.seewinter.com/winter*

Above Left: *Winter by Paul (Flickr: IMG_8203) [CC BY-SA 2.0 (http://creativecommons.org/licenses/by-sa/2.0)], via Wikimedia Commons. https://en.wikipedia.org/wiki/Winter_(dolphin)*

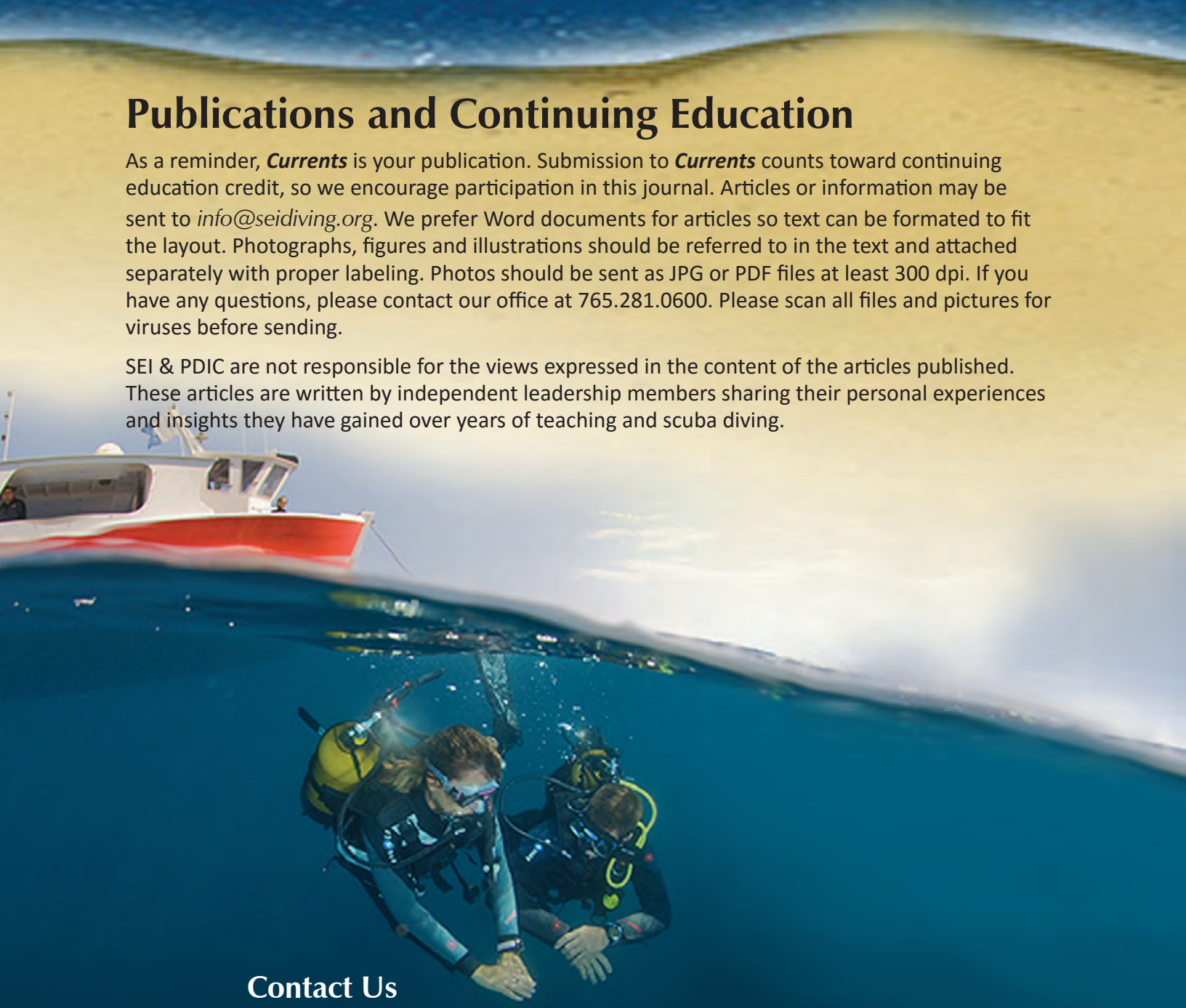
These stories, while well known, are only a small example of many that go unreported around the world. Sometimes nature needs a helping hand in keeping things healthy and flourishing. With the help of the researchers, the male Olive Ridley sea turtle had the straw removed, the nasal passage cleaned out with iodine and was returned to the wild – hopefully feeling much better. Peanut had the plastic stricture removed is mostly healthy with some lasting organ damage and has become a symbol of anti-litter campaigns while residing in a St. Louis, Missouri zoo. Winter inspired a team of people to create the first dolphin prosthesis which has allowed her to continue to live and thrive in her protective home with the Clearwater Marine Aquarium in Florida.

Regardless where one resides, whether a coastal dweller or a landlubber, there are animals and landscapes that could use a little help – from picking up rubbish on your street to participating in a larger clean-up projects – all efforts help.

Publications and Continuing Education

As a reminder, ***Currents*** is your publication. Submission to ***Currents*** counts toward continuing education credit, so we encourage participation in this journal. Articles or information may be sent to *info@seidiving.org*. We prefer Word documents for articles so text can be formated to fit the layout. Photographs, figures and illustrations should be referred to in the text and attached separately with proper labeling. Photos should be sent as JPG or PDF files at least 300 dpi. If you have any questions, please contact our office at 765.281.0600. Please scan all files and pictures for viruses before sending.

SEI & PDIC are not responsible for the views expressed in the content of the articles published. These articles are written by independent leadership members sharing their personal experiences and insights they have gained over years of teaching and scuba diving.



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