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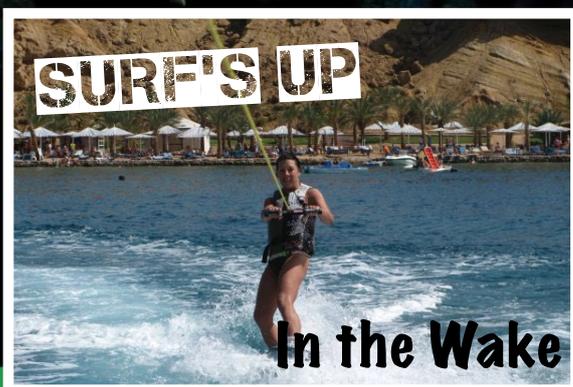
jargon buster

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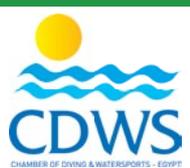
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Front cover image: Nigel Wade



Letter from the Editor

As a teenager, to me 'being responsible' was something teachers and adults went on about when I shared dreams of travelling the world and doing exciting things, such as diving with sharks and writing about it...an impossible fantasy that I'd soon grow out of apparently.

In subsequent travels in my working life, which have included many dives with sharks, I think I may have finally learned the importance of responsibility. I'm sure all those sensible grown ups who offered me such wisdom 20 years ago will be sighing with much relief.

Individual and collective responsibility would go a long way help to prevent destruction such as that we're witnessing in the Gulf of Mexico. I personally don't see how name calling of BP CEOs actually brings any comfort to the marine life drowning in oil slick. Sure, responsibility lies with BP and it should be held accountable, but what about the president and his country that consumes 25 per cent of the world's fossil fuels? Didn't Mr Obama say 'yes we can' to more offshore drilling a few months prior to the spill?

In fact, shouldn't each of us who demand fossil fuels and their by-product, such as plastic, whenever and wherever we want it, ask a responsibility question of ourselves? I certainly feel shame when I see a plastic bag floating in the sea because I should be responsible enough to bring my reusable canvas bags to the shops each and every time I go to prevent my discarded rubbish being a threat to marine life. To point the sole finger of blame at faceless companies and government institutions is somewhat shying away from individual responsibility.

When news of the recent spill in Hurghada hit the headlines, our collective hearts stopped, particularly after seeing the horrors of the Gulf. And while damage has been done in some areas, we have to be thankful the majority of this incredible marine ecosystem has remained untouched. Underwater business is as normal in the resorts of El Gouna and Hurghada. All those who took part in the clean up, including the dive community, certainly didn't shy from their responsibility in doing anything they could, no matter how small. I'm sure all of us are grateful to all those who took part.

In Green Team on page 16 - 17 you can read about dive centres in Dahab which are taking responsibility for clearing up some of the beaches and dive sites they regularly frequent. Not of oil, but of washed up and dumped plastic - a product which has probably threatened many more lives in the sea worldwide than the crude oil in the Gulf of Mexico has.

Okay, I climb off my (hopefully biodegradable) soapbox now as I'm off to the far south of Egypt's Red Sea to go find some sharks to dive with and write about. Just think, if I'd actually listened to those aforementioned sensible adults I'd probably be squeezed in a crowded London Underground train on my way to the office right now with my face pushed up to a less than hygienic armpit. Nevermind, at least I eventually learned that I need to try to be more responsible in life.

Happy (and responsible) diving.

Charlotte

Charlotte Boan Editor, BLUE



Letter from Managing Director

Dear readers,

CDWS has certainly come a long way since it was first established in 2007. The idea of establishing a body which had proper structure and influence with government policies with regards to the industry had been simply a dream back in the days when diving was not officially regulated by anyone in Egypt. Before the CDWS, we had two non-government bodies: South Sinai Diving Marine Services (SSDM) and the Red Sea Association. Membership of both organisations was voluntary.

This is a sector which was without any official regulation for 20 years until the CDWS was established in 2007. It used to be a sector where anyone could set up a dive centre anywhere without any rules or regulation to maintain and monitor safety. Now we have a set of bylaws, which are recognised by the diving industry throughout the world and set up by leading agencies and representatives.

This, of course, took a long time to implement and there were those who clearly did not want to comply and follow with a set of standards and this presented us with a challenge. However, we remained focused and kept going in our goal to raise standards and safety in this industry and we have succeeded in many fields.

Rules and regulations have to come through CDWS, which is made up of professional representatives from Egypt's diving industry who understand the needs and the challenges. Now when you open a dive centre in Egypt you receive a form that clearly states the rules and regulations and the standards by which you have to comply to meet with the law. This includes information about what auditors are looking for exactly when they inspect each operation. We continue to work on providing as much information to people as possible about the standards.

CDWS forms the link between industry and the political decision makers. We are still in the early stages and learning all the time the best way to achieve these goals.

Of course we have faced some resistance and many wholly untrue rumours have circulated within certain sectors. But let's ask ourselves one simple question: 'Would you let your loved ones go and dive with an unregulated dive centre that doesn't meet the minimum basic standards set out by an international body of diving experts?' Of course not, and that is why we believe these centres should not have a license to operate in the first place.

You cannot be a member of CDWS without complying with these standards. MoT licenses are only issued to CDWS members.'

We continue to strive to build for the future, nevertheless, our goal to make this the safest and best place for diving and watersports has always remained the reason for the CDWS and its main priority.

Zeyad ElBassel
Managing Director of the Chamber of Diving and Watersports

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Francesco Germi

Francesco Germi, 46, has an inspiring passion for nature on land and underwater. The Italian diving instructor and zoologist first started freediving and spear fishing in 1979 at the age of 15. He then went on to qualify as a scuba diver in French Polynesia in 1990. While completing his dive instructor training, Francesco worked in the Italian film industry as an assistant director. He then flew off to work as a dive guide in the Philippines and Kenya before becoming a full time dive instructor in Sharm el Sheikh in 1997. The Sinai was an ideal location for Francesco, who has a passion for diving as well as the desert. His life is balanced between working at Camel Dive Club and as a freelance consultant and researcher on terrestrial and marine wildlife in Egypt and Indonesia. Read his in-depth report into the impact of tourism on world class coral reef systems, such as those around Sharm el Sheikh on page 20 - 22.



Sarah Adjani

BLUE's sub-editor Sarah Adjani, 36, reports on her learning to wakeboard experience in this issue's Surf's Up, page 16 - 17. A former semi-professional swimmer, Sarah, has always had a passion for the ocean and watersports. Following eight years working for the European Union in Cairo as a European Union project manager, she moved to the Red Sea resort of Sharm el Sheikh in 2006. Despite suffering from ear problems that have kept her from swimming and diving for the last few years, she still makes the most of living by the Red Sea by windsurfing and now wakeboarding. She is based full time at Camel Dive Club, where she works as a training manager, teaching English for business. Specialising in languages, she speaks Arabic and French as well as English.



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Giant fishing net removed from Yolanda reef



Staff from Ocean College Dive Centre in Sharm el Sheikh removed an illegal fishing net from the reefs around the world famous Yolanda Reef in the Ras Mohammed National Park in June. Ocean College instructor Neil Black reports.

During the last week of June, Ocean College took its guests diving in Ras Mohammed and, as usual, decided to dive on Shark and Yolanda reefs.

The current was fairly strong and running in reverse, from Little Yolanda Reef (also known as Turtle and Satellite Reef) to Yolanda. As it was the first dive of three, the plan was to descend to about 28m so that it would not restrict the depth of the remaining two dives and avoid a reverse profile.

Doing the dive in reverse is a nice change from the normal route as you get to glide over the drop off, past the stacked baths before following the deep groove left in the reef by the wreck of Yolanda. Either side of the groove, the odd toilet and other bits of wreckage can be seen littered around the reef as well as the usual coral and marine life common to Ras Mohammed.

However, on this dive something was wrong. The groove seemed to disappear at about 28m. As we approached it soon became clear why.

There was a massive fishing net covering the area, laying across the reef like a military camouflage net. The net started at about 28m and stretched out well beyond the 25m of visibility we had at the time.

After the dive a call was made to the CDWS to report the net. The organisation thanked us for reporting it and asked if we could arrange for the net to be removed. The next day, a further dive was made to take photographs and assess how deep and how large the net was and what would be needed to remove it safely.

We discovered that the net covered an area approximately 30m-wide and 5m-deep. It started at 28m and continued down the reef to a depth of 34m with lead weights evenly spaced along it. I followed the net down slowly, looking at the hard and soft corals that had been broken off, presumably by the fisherman trying to pull it free, while praying that I did not come across an entangled turtle or other creature. Surprisingly there were no fish caught in the net.

Armed with this information, I arranged for a team of technical divers from Ocean College to join me in an attempt to remove the net. We decided that we would untangle or cut the net from around any of the coral or plants that it had ensnared and slowly fold it up into a 1m-square before using lift bags to bring it to the surface. We thought about bringing the net up as it was, but decided against it when it was suggested we start a sweepstake on how many divers we would catch.

Untangling the net was painstakingly slow; making sure that the net did not re-entangle itself around the coral - or even worse around us. It was truly disheartening to see the amount of damage caused by the net.

I had originally estimated that it would take 20 minutes to untangle and fold the net but it actually took twice that long. Once the net had been folded, a small piece of rope was used to tie it together and a 45kg lift bag was attached and slowly inflated. I was surprised at how heavy the net was and at the amount of air needed in the lift bag. It even took two people to lift it into the boat.

We wanted to escort the net to the surface to ensure that it did not get lost on the way, especially as the lift bag was not mine and had been borrowed. A lengthy bottom time meant we had to complete decompression stops. During these stops, accompanied by the net, numerous other groups of divers passed by and seeing the net - all showed their appreciation in one way or another, some even offering their help.

Once back on dry land, the net was measured and photographed. It was 36m-long and 5m-wide, so would have been covering an area of 180m² of the reef.

After the pictures were taken, the lead was removed and I personally cremated the net. I know this is probably not the most environmentally friendly means of disposal, but there are no recycling places in Sharm and I could not risk the net falling into the wrong hands.

The CDWS and Ras Mohammed National Park are asking for your assistance. If you witness any form of fishing in Ras Mohammed please take photographs, or even better video, and send them with a brief note including date, time, location and any other information to laura.coppa@cdws.travel

Divers give the oil clear

All CDWS member diving and watersports centres are operating as normal in the resorts of El Gouna and Hurghada following an oil spill in open sea in June. The spill, which was classified as 'limited', is thought to have been caused by a leak at an offshore Red Sea oil rig situated 40 miles north of El Gouna.

According to information received by the CDWS, the main concentration of oil and the most polluted area was far north of El Gouna near a bird sanctuary. Around 12 hotels in the Hurghada and El Gouna area reported oil on beaches in the days following the spill, however, according to conservationists based in the area, the clean up of these areas ran successfully.

The Environment Affairs Agency (EEAA), together with the Center for the Combat of Petroleum Pollution and the Red Sea Protectorates Authority, oversaw the clean-up operation.

CDWS cannot confirm the extent of the damage caused, however, CDWS member operations in the area reported little signs of the spill. Dive centres from both El Gouna and Hurghada area, including Aquarius, Ilios Dive Club and Blue Brothers, said their guides had seen no signs of oil on the reefs and that following the clean up, most of the spill on shore had been cleared.

Hurghada-based conservation organisation HEPCA confirmed that the efforts to contain the impact of the oil spill had been very successful.

'More than 90 per cent of the beaches north of Hurghada were cleaned and the manual collection method has proven to be very successful,' said the HEPCA statement. 'Most of the hotels and resorts have informed us that their beaches are back to normal. More efforts are expected regarding the clean up of the northern islands of Um El Luhaimat and Tawila which are located around 30 miles north of Hurghada.'

New ISO diving standards

New diving standards look set to be issued within the next 12 months, following ISO and EUF (European Underwater Federation) meetings in Vienna, Austria in June. CDWS managing director Zeyad M ElBassel was among the international delegation of diving industry heads who revise and set standards recognised throughout the world.

Among the new ISO standards, which will be required by law by all diving centres and recognised training agencies operating within Egypt, is training for enriched air nitrox, introductory dives and snorkelling services.

Revised standards include the requirement that all introductory dives are treated as training dives.

All ISO standards are revised every five years by a committee of diving industry heads, including training agencies such as CMAS and PADI. Changes are made to these standards must be sent to ISO member countries for comment and analysis before they are published.

Other ISO standards being looked at include precise definitions of confined and open water conditions. This is in response to the growing number of purpose built inland sites for divers.

Egypt is one of the few places where these internationally recognised standards are compulsory by law. Zeyad M ElBassel said: 'In Egypt these are mandatory, not just recommended. However, even in countries where these standards are not mandatory, they [ISO and EUF standards] are still the reference which legal and insurance investigations measure against when things go wrong. These standards ensure a level of safe diving practice throughout the world.'

Sharm el Sheikh has been chosen by delegates of ISO and the European Underwater Federation to host the next diving industry standards meeting. The meeting will be held in December.



New moorings for Taba

South Sinai National Park officials have installed ten new moorings in the resort of Taba with the support and help of Red Sea Water World and Aquasport Taba. The moorings were installed in popular dive sites, including Angels Net and Maxells, using boats provided by Red Sea Waterworld.

'The lack of safe places to moor had made these sites only possible for drift diving,' said Red Sea Waterworld. 'Occasional difficult surface conditions can prove challenging for inexperienced divers.'

The Faun Island and Fjord areas, which are both popular for snorkelling excursions, have also had moorings installed.

Egypt Mediterranean reserve created

Egyptian authorities have established the first Marine Protection Area on the country's Mediterranean coast. The new reserve has been established in an area covering 150 square miles, said to contain around 12,000 marine species.

The area will now fall under similar protection given to the marine parks in the Red Sea, which include the world famous Ras Mohammed National Park.

Fly, land and Sea



Emperor Divers has launched a series of cruise and stay packages throughout the Red Sea, where visitors can combine liveboard and land-based diving over a week holiday. 'Time in the water can be really maximised with an average of 14 or more dives during a one week holiday. All diving costs are included. Emperor Fleet's Cruise & Stay holidays are already available in Sharm el Sheikh aboard Emperor Orchid and coming soon to Hurghada and Marsa Alam. For more information email Emperor at info.safaris@emperordivers.com.



Dance for Earth Day

Sharm el Sheikh's diving community donned the best flares, wigs and psychedelic 70s outfits at a beach party celebration to mark Earth Day 2010, which raised money for marine conservation charity Project Aware. The party, held at the Ultima Spiaggia beach in Sharm el Maya on 29 April adopted the 70s theme to mark the 40th year of Earth Day.

'An initiative that began in 1970, Earth Day is a time to focus on our planet, to give back to the earth and generate awareness for the detrimental effect of human activity on our planet,' said beach party organiser Vicki Jarman, an instructor at Red Sea Diving College. 'For the last ten years Project Aware has been involved, encouraging divers to clean up the seas and save the oceans.'

Sharm's own 'funky DJ' Disco Dave treated more than 350 dancing divers to a selection of classic 70s tunes. Supporters included Red Sea Diving College, Sinai Divers, Anthias Divers, Oonas Dive Club, Camel Dive Club, Emperor Divers, Ocean College, Colona Divers, Fernando's Restaurant, Ultima Spiaggia and Disco Dave.

The evening raised more than 7,000LE (972 Euros) for PADI Project AWARE.

Terry Johnson, the regional manager for PADI in Egypt, said: 'The evening was an outstanding success, Project AWARE is extremely grateful to everyone that participated in the organisation of the evening.'

Project AWARE Red Sea:

Project AWARE recently awarded Sharm-based Camel Dive Club with the 2009 Environmental Achievement Award to recognise its efforts in the areas of marine conservation education, advocacy and action. Camel Dive Club instructor and regular BLUE magazine contributor, Cath Bates, was also personally congratulated by Project AWARE Foundation for her efforts in promoting and supporting environmental projects.

Keep it clean



Pharaoh Divers in the Red Sea mainland coast resort of El Quseir was recognised by Project AWARE for its efforts to clear 450kg of marine debris from its local dive sites. A total of 38 bags were filled with marine litter by the dive centre staff.

Anthias Divers in Sharm called in the help of staff, locals, tourists and MFO (Multinational Force and Observers) divers to help clean around the Sonesta Beach Resort in the heart of Naama Bay. Bottles, ropes, fishing lines, plastic car tyres, oil filters and a spaghetti pot were among the items collected in the event, supported by CDWS, PADI and SSI International. A Reef Aware Quiz with prizes was organised for all participants following the clean up. For more information about Project AWARE, see its website www.projectaware.org.



Underwater schooling



Hurghada-based dive centre Ilios Dive Club took students from year 8 at El Gouna International School to visit coral reefs in the area to educate them about the marine environment. The students' teacher, Stuart Ashmore, wanted the children to see for themselves the coral reefs and marine life they had learned about in the classroom.



'The whole class went on board the diving yacht, heading for the Gota Abu Ramada Aquarium,' said Martina Aziz of Ilios Dive Club. 'It was a pleasure to welcome Mrs Maha Khalil, a marine biologist from HEPCA on board as well. Mrs Maha gave a wonderful presentation about coral reefs. The whole class went snorkelling with open eyes. Everybody was pointing out different corals and aspects. Mrs Maha instructed them to see not only the beauty but also the problems facing the coral reef.'

Photos: No Limit Video Hurghada

HEPCA dolphin research appeal

HEPCA is inviting divers to join its research vessel to take part in a dedicated study of dolphins in the Red Sea. Divers participating in the Red Sea Dolphin Project aboard HEPCA's vessel Red Sea Defender will work with researchers who will share their knowledge of marine life, research methods and diving practices.



The next trips will be held between 1 and 11 August and between 12 and 22 August this year. Prices start at around 1,500 Euros per person.

To find out more information, email HEPCA senior marine biologist Marina Costa at booking@hepca.com.



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Manta appeal

World leading manta ray expert Dr Andrea Marshall has appealed to all dive operations in the Red Sea to record sightings to help a worldwide effort to protect the pelagic species. The researcher, who revealed that there are two species of manta ray to the marine science world last year, made the appeal to divers during a number of talks on a three-week visit to Sharm el Sheikh in July.

Over a period of 18 months Dr Marshall is diving areas where giant manta aggregations are most commonly sighted, including Mozambique, South Brazil, Mexico's Caribbean coast, Ecuador, offshore Thailand and the Philippines. Her plan is to educate and appeal to divers about the importance of recording sightings, as well as documenting and satellite tagging species underwater in these giant manta hotspots while diving the sites herself.

'It is great that there are so many dive centres willing to host me,' said Dr Marshall, who was diving with Sharm-based Camel Dive Club in the early part of July. 'Divers are as passionate and extremely helpful. Conservation is my goal. It is my responsibility as a leading expert in this field to assess the manta rays conservation status. I have made a bid to make a rapid assessment worldwide over 18 months. The results of which will hopefully prove that this species should be listed as vulnerable.'

South Sinai was an area picked by the researcher, dubbed the 'Queen of Mantas', because this area is thought to be an important nursery ground for giant mantas (*Manta birostris*). The area is not abundant with food for manta rays, so scientists believe something else is attracting them to this part of the Red Sea.

'Of all the photographs and sightings over ten years, they are mostly of small juvenile animals of around 1.5m to 3m,' explained Dr Marshall. 'When sightings of adults have been reported these have only been females. Perhaps then bigger female giant mantas are coming to give birth and younger rays are staying around because the warm, stable and sheltered conditions in Sharm provide a good nursery habitat for this manta species. We don't really know much about manta nursery environments and this could be the first indication.'

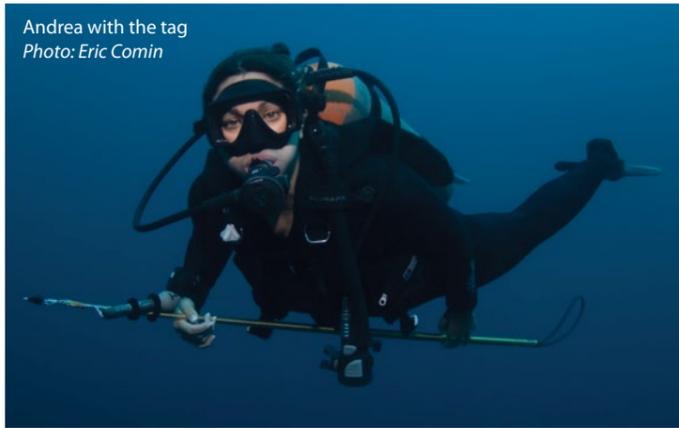
Dr Marshall said divers were an important resource for surveying numbers and species of manta rays worldwide, particularly for providing photographs both old and new.

'I feel like this [Red Sea] could be a really critical habitat, particularly if this is used as a 'pupping ground' by the species,' she said. 'Divers can help me out for the Ray of Hope study. Part of this study is to make a plea to divers around the world. Citizen science if you like. Photographs make a huge difference as we can identify particular manta rays from these. It could be that we match up one of these photographs with an animal that has also been spotted 5,000km away – something we spend 5,000 US Dollars on each satellite tag to find out. Old pictures are extremely useful as well, as we know very little about these creatures.'

She has asked all dive centres to collate information on sightings over a period of 12 months, which scientists can match against season changes in the water, including chlorophyll levels.

For more information about her research, see her website www.marinemegafauna.org.

The 31-year-old researcher has been diving since the age of 12 and an underwater photographer since the age of 14. Much of her research is based on 'in the water' science. Read a full interview with Andrea Marshall, the Queen of Mantas, in the next edition of BLUE.



Andrea with the tag
Photo: Eric Comin



Close up of the tag
Photo: Andrea Marshall



Giant mantas can easily be identified as individuals by their distinctive spot markings.
Photo: Andrea Marshall



Giant and Andrea
Photo: MMF

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YOUR QUESTIONS ANSWERED: Work permits for foreign diving professionals working in the Egyptian diving industry

Can foreign diving professionals in Egypt obtain a CDWS card without a work permit?

No, they cannot obtain a CDWS card without a work permit. By law, all foreign nationals working in Egypt must have a work permit. The Ministry of Labour requested that CDWS comply with the law by making a work permit compulsory for all holders of CDWS cards.

How do foreign diving professionals obtain a work permit?

Foreign dive professionals do not submit a request for a work permit. The whole process has to be done by the company owning the diving business. The process is complex and involves the following steps:

1. Obtaining approval from the Ministry of Labour for the number of work permits required by the company. The law stipulates that the number of work permits should not exceed the ratio of one foreign worker per every ten Egyptian employees registered in the company's social insurance records. However, CDWS managed to change this ratio within the diving sector which means three work permits for every ten Egyptian employees socially insured with the company. To get this approval, the company must send a request to the CDWS for its supporting letter, together with social insurance Form Number Two as proof of number of socially insured Egyptian employees. For more information email sinai.membership@cdws.travel.
2. The company then has to submit the CDWS supporting letter to the Ministry of Labour in Cairo and wait for approval from the Minister of Labour. The Minister of Labour sees each approval request case by case personally. This process usually takes between one week to one month.
3. Once the company has obtained this approval specifying the number of work permits, it can start working on individual procedures for each staff member it wants to employ. The member operation should fill in, sign and stamp the request form for a certificate of experience request for each foreign worker. This costs 200LE per individual experience certification. Involvement of the CDWS in the process is no longer needed once these certificates of experience have been obtained.
4. For each individual work permit, the centre must hold the experience certification from CDWS, together with all the other necessary documents for each permit, including professional diving licence and copy of passport. Work Permits for South Sinai employees should be processed in the El Tur Labour Office. For Red Sea Governorates, this should be done in the Hurghada Labour Office. The Cairo Investment Authority labour Office



Photo: Maria Munn

processes applications for companies operating in areas in Egypt under Law 8 1997.

Can you explain what CDWS has done to make it easier for foreign diving professionals in Egypt to secure a work permit?

As well as increasing the ratio to three foreign workers for every ten socially insured Egyptian employees at each company, the CDWS has made the process easier with supporting letters. These letters strengthen the case for Ministry of Labour approval.

There are also other areas where we have worked hard to make it as easy as

possible for diving professionals to work in Egypt. It used to be the case that those requesting a work permit had to leave the country and come back with a fresh visa for application, a process known as Estqdam. CDWS managed to get a waiver on having to leave the country during the process.

Also, CDWS convinced the Minister of Labour that once a diving professional has submitted Form Number Four and obtained a green receipt for this as proof of work permit processing, the individual could legally obtain a CDWS card.

What if there is a delay? Can foreign diving professionals work while waiting for the work permit application process to be completed?

Yes, as long as they have sufficient proof of application. As previously explained, diving professionals can obtain a CDWS card once they receive the green receipt for Form Number Four. This proves they have begun the process of obtaining their work permit. The green receipt can be obtained before the results of the HIV test are available.

Usually employees of companies under Law 159 can obtain a green receipt within one week of the work permit application. For companies under Law 8, this may take around two weeks.

If you have any problems or questions regarding the green receipt needed for your CDWS card, email the CDWS membership service sinai.membership@cdws.travel.

What is the approximate cost of an individual work permit?

CDWS fees are set at 200LE per work permit, covering experience certification and other administration costs. CDWS has no control or involvement in the additional costs needed to obtain a work permit. Approximate costs of each work permit are as follows:

- » Approximately 1,520LE must be paid to the Labour office for the working visa application, together with receipts and stamps.
- » The HIV test which has to be completed by all those requesting a work permit costs approximately 100LE.

- » Tourist investment fee is approximately 100LE, covering security checks on individuals.
- » Companies operating under Law 8 pay an additional 100LE for tourist investment charges.
- » The six-month resident stamp costs approximately 75LE. For each additional six months this costs approximately 70LE on top of the first fee.
- » In addition to the approximate costs as outlined above (between 1,900 and 2,000LE), are the logistical costs, such as going back and forth to the labour offices and any tips requested during the process from lawyers or other people involved in the process.

Does it matter which diving training agency qualification you have when the dive business you work for applies for your work permit?

Any diving training agency that is a European Underwater Federation member or recognised by the World Scuba Training Council is accepted. So if you are a qualified professional with these agencies, you qualify to work in diving with regards to your qualification and experience.

Do you have to be a qualified instructor to obtain a work permit or can you legally work as a dive guide?

Those recognised as a qualified professional dive guide are eligible for a work permit. It must be noted, however, that dive professionals do not apply for the work permit themselves. It is the business that owns the dive centre that applies for the permits.

How does the work permit requirement affect freelance diving professionals?

A CDWS member operation has to be the applicant for the freelancer. The freelancer can still work for other dive centres with this card. Individuals cannot apply for work permits; all applications must be done through a CDWS member centre.

Can CDWS member centres obtain work permits for counter staff?

Yes. Currently the Ministry of Labour accepts work permit applications for counter staff, however, it has claimed that it this will be stopped soon. CDWS will of course try to work to make sure this doesn't change and counter staff still qualify for permits.

How does the work permit requirement affect underwater videographers?

Videographers must have a CDWS card if they are working. This can be obtained through a CDWS member business or through their own licensed video companies.

If you have a work permit for other employment other than diving, but area qualified diving professional can you obtain a CDWS card with this permit?

No. Only those with a work permit for diving employment legally qualify for a CDWS card.

EUF publishes insurance guidelines



Photo: Maria Munn

Guidelines for recreational diving insurance cover have been published by the European Underwater Federation (EUF), following a lengthy worldwide survey which showed many policies were failing to sufficiently cover the needs of divers. The EUF said its paper is designed to provide background information to assist in choosing policies and a benchmark against which to assess diving insurance products.

'Insurance can be regarded as an element of a diver's risk management strategy and as such requires the diver to understand both its use and limitations,' said the EUF. 'Most travel and holiday insurance is designed for a broad market, often focused package tours. This rarely takes into account the needs of a recreational diver and often is either insufficient or even excludes such activities. While uncommon, diving injuries may well require specific treatment and aftercare that can necessitate expert support and scarce, expensive facilities. For divers without appropriate cover, this can create severe and even dangerous problems should the necessary care not be immediately available.'

EUF recommends that divers should consider their insurance needs with regards to search, rescue, recovery, treatment and repatriation.

'Ensure that the kind of diving you wish to undertake is not excluded – often depth limits, PPO2 values and particular equipment are mentioned,' EUF added. 'Age limits, appropriate certification and pre-existing medical conditions may also apply. Consider also the difference between indemnity cover where the claimant pays costs up front and policies that meet costs as they arise, including guarantees for medical and other services.'

EUF also outlined the following aspects to consider when purchasing insurance:

- » Cancellation/curtailment: usually part of a travel insurance, check that dive packages purchased locally and not through a holiday package are covered. It can be difficult to find this cover element for group dive trips organised through local centres or clubs.
- » Accident definition: ensure policies do not exclude bites, stings, hypothermia, hyperthermia, suffocation (breathing gas problems) or drowning.
- » Hospital/recompression treatment: In some areas either advanced payment or evidence of suitable insurance is demanded before hospital treatment or hyperbaric treatment can begin. Policies should also cover both in and out patient treatment and prescription costs.
- » Emergency assistance: Bearing in mind language issues and times zones, it is important to have an insurance system offering 24/7 worldwide contact and activation.
- » Disability and death. Not all standard life insurances will cover a diving fatality or may offer limitations as to cover, so further insurance may be advisable. There can be very significant variance in divers' personal needs. Those with additional responsibilities to others, such as family members, may well wish to take out much higher cover appropriate to meet these needs.

Fight Against Illegal Fishing

Egypt's Chamber of Diving and Watersports (CDWS) is appealing for visitors to help stamp out illegal fishing in the Red Sea by recording evidence of illegal activity on camera. If you see fishing in restricted areas or evidence, such as nets and lines in no-take zones, the CDWS wants to hear from you.

A report of all evidence submitted will be sent to the Egyptian government calling for action to be taken against illegal fishing and put the issue at the forefront of the political decision-makers minds.

The Red Sea is one of the few places on the planet where shark fishing has been made illegal, with other species receiving protection in a significant number of productive coral reef marine zones. National Park areas such as Ras Mohammed in the north and dugong rich areas in the south such as Abu Dabab, are two of many areas where fishing of any kind is banned. However, there is increasing evidence to suggest fishing activity continues in these areas and CDWS wants visitors to name and shame the catchers.

Illegal fishing is threatening underwater life worldwide. A number of research reports, including a recent UN-funded investigation, estimate that up to 20 per cent of the global fish catch is caught illegally.

In December 2008 the CDWS together with SSDM and HEPCA organised the first-ever conference to discuss the issue of illegal fishing, bringing together the Governor of South Sinai, the Minister of Tourism, the Minister of Agriculture, Egyptian Fisheries Agency, the Deputy Minister of the Environment, the head of South Sinai Parks, Fisherman Association and the Oceanographic Institute. However, there is still no significant changes to the law to deal with illegal fishing.

'One of the biggest environmental problems is clearly identified as illegal fishing, particularly in marine zones, which are supposed to be protected,' said CDWS chairman Hesham Gabr. 'We need to keep this issue at the forefront of the government's mind, which is why we have set up this campaign.'

If you see any suspicious fishing activity in known no-take zones, follow these steps:

1. email your pictures, with date, time, name of boat, location and any other useful info to fishing@cdws.travel
2. log on to facebook and join the group Capture the Catcher where photos will be uploaded and you can show your support of this campaign.

Red Sea Rules

- » No fishing is allowed in national park areas No fishing is allowed on known dive sites
- » Tourist fishing trips need permission from the authorities; however, it is highly unlikely for permits to be issued.
- » Local Bedouin fishermen are allowed to fish, however, not on dive sites or within national parks unless they have a special permission for this.



CAPTURE the CATCHER
uniting the Red Sea's diving community to help stop illegal fishing

Illegal fishing: a global problem

Illegal fishing is threatening the environment worldwide, with experts calling it a major obstacle to the achieving of sustainable world fisheries. Contributing to overexploitation of fish stocks, illegal fishing is also a hindrance to the recovery of fish populations and ecosystems.

According to the 2009 report entitled Estimating the Worldwide Extent of Illegal Fishing, Illegal, unreported and unregulated (IUU) fishing is worth between ten billion and 23.5 billion US Dollars a year – representing a major loss of revenue, particularly to some of

the poorest countries in the world where dependency on fisheries for food livelihoods and revenues are high.

'IUU fishing is a serious global problem, one of the main impediments to the achievement of sustainable world fisheries,' the report states. 'It thrives where governance is weak and where countries fail to meet their international responsibilities. It puts unsustainable pressure on fish stocks, marine wildlife and habitats, subverts labour standards and distorts markets.'

Illegal fishing, the report concludes, creates significant environmental damage through the use of unsustainable fishing practices and has wider consequences for food supply.

Egyptian Red Sea fishing law proposals

The CDWS, HEPCA and SSDM joined forces in 2008 to organise a series of conferences to highlight the issue of illegal fishing, bringing together law makers, environmentalists, diving groups, environmental, local and national government representatives. The last conference was held in May 2009 in Hurghada.

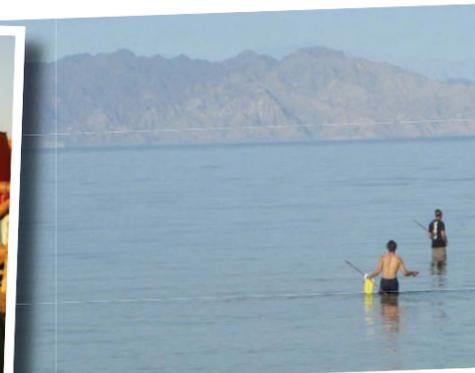
Among the recommendations put forward at both conferences were: the identification of fisherman; a ban on issuing new fishing licenses to those with another job; and redistribution of fishermen according to the origin of their license, which forbids them from catching in other areas.

Director of the South Sinai National Park, Dr Mohammed Salem explained that parties want to come up with a realistic plan where traditional and sustainable fishing continues in waters around the Red Sea, but the destructive and unsustainable techniques often used by fisherman coming in from other parts of Egypt cease.

'We are not against fishing, we are against destructive fishing,' said Dr Mohammed. At the conference it was pointed out to officials just how much diving and Red Sea-related tourism was worth to local and national economies compared to that of fishing.

Regulations to limit the impact of fishing activity proposals drawn up at the conference included the following:

- » Determine fish spawning zones and restrict all fishing activity (creating no-take zones).
- » Total ban on spear fishing and the use of shark trap techniques
- » Fishing net restrictions along the southern coast of the Red Sea mainland and throughout Sinai.



- » Restrict trawling and dredging techniques.

The conference also called for the introduction of set penalties for those breaking the laws and the strict implementation of existing environment and national park laws.

However, the conference recognised the need to re-train fishermen who would likely lose their source of income once such laws were introduced and enforced. At the conference the Minister of Tourism discussed a five million Egyptian pound scheme that would see fishermen 'rehabilitated' to make them employable in the tourism industry. The conditions include providing employment opportunities for the fishermen in the tourism industry in return for their fishing license. To work, this would need the backing of investors associations, local non-government organisations and bodies such as the CDWS.

The remaining proposals put forward at the conferences covered the following:

- » Zoning a limited area in the Red Sea for sports fishing which does not include fish spawning or incubation areas.
- » Encourage scientific research specific to the evaluation of fish stocks in the Red Sea and the rehabilitation of the over-fished areas using unsustainable techniques.
- » Forming a committee that meets regularly. Appoint a chairman from ministers and/or governors related to this issue to follow up in a yearly conference.

Finners caught

Four illegal shark fishing boats were detained in Egyptian Red Sea waters and more than 60 Yemeni fishermen were arrested after being caught finning sharks around Zabargad Island. Following an appeal by environmental group HEPCA, the boats were tracked down and cornered by two diving safari boats Golden Dolphin 3 and Desmondo around the island until official authorities arrived to arrest them.

'This collaborative effort from members of

the community is the key to the protection of our environment and the sustainability of our natural resources,' said HEPCA in its statement.

'The process of halting these violators was based on the efforts of many, including: a large number of safari boats that first spotted them, reported them and tracked them, as well as boats that ceased their lines and released more than a dozen hooked sharks. Also local boats that collaborated with the authorities to provide their exact locations and the government authorities that actually stopped the boats and arrested ten fishermen.'

HEPCA's own vessel Red Sea Defender had taken an active part in the group's campaign to track down the Yemeni fisherman by spotting two illegal shark fishing vessels 56km from the shore of Hamata. It said that within two hours of reporting the vessels, official authorities had apprehended them.

'We would especially like to highlight the efforts of two safari boats: Eldabaran and Royal Evolution that pulled up more than 11km of hooked lines that potentially would have killed dozens of sharks,' HEPCA added. 'Their brave work uncovered that the fishing vessels were utilizing dolphin and juvenile shark meat as bait.'

The Egyptian Red Sea is one of the few places where a complete ban on shark fishing has been introduced. The decree was issued following appeals from local underwater groups and conservationists.

The decree number 484 for 2005 issued by the head of the General Authority for Fish Resources Development in Egypt states the ban on fishing and trading of sharks in the Red Sea. Violation of the ban will result in people being subject to prosecution according to Law 124 for 1983.

HEPCA and CDWS continue to appeal for the Red Sea community and visitors to report violations.

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CLEANING UP

Clean ups of beaches and underwater sites by dive centres continue to make a difference throughout the Red Sea. Some centres are even organising weekly and bi-weekly clean-ups where guests and staff alike do their bit to remove debris and blown in plastic from the reefs and surrounding areas. BLUE reports.

It was clear 30 minutes into our 90 minute dive along one of Dahab's most prized areas for diving, that the large flour sacks we were carrying would surface with little more than a few plastic shards and an old rope. Not that we minded; quite the contrary. It was a beautiful spot to drift along and was great to know that very little litter had touched these reefs.

Back on the surface, the beach told a different story. A total of 25 flour sacks were needed to carry the discarded plastic that had been blown to this dramatic part of the Sinai coastline, where desert mountains almost touch the coral reefs. A dumped tyre was the last item to be piled into the truck by the Sinai Divers team I joined on 11 May in the most southern part of Dahab, between the dive sites Um Sid and Caves.

'This is something we should be doing at least every two weeks,' said Sinai Divers dive guide Gosia Sladowska as we drove away. The staff who had volunteered all nodded in agreement as the conversation quickly steered to the subject of plastic and recycling and what the community could do to help.

CDWS member centres organised a series underwater and beach clean-ups in May throughout Dahab to mark the launch of an environmental campaign against dropping litter. The week-long



event also saw a team of freedivers from Italy, led by record-breaking diver Gianluca Genoni, collecting many discarded plastic bottles and other items of rubbish from around the Blue Hole, a world famous dive site.

The freedivers, sponsored by dive manufacturer Mares, were supported by members of CDWS and the National Parks of South Sinai in the Blue Hole clean-up. Signs donated by Beyond Limits, a Red Sea based Mares distributor, were also placed around the Blue Hole. Aimed at raising awareness, the signs – translated into languages such as English, Russian, French, German and Italian - instruct visitors not to leave any rubbish at the site and to dispose of any items responsibly.

With the support of CDWS and National Parks of South Sinai, volunteers from dive centres elsewhere collected many tonnes of rubbish in and around dive sites covering the length of Dahab. Member centres who participated in clean-up between 8 and 16 May included Orca Dive Club, Sinai Divers, Nesima Resort, Poseidon Divers, Extra Divers and Reef 2000.

A spokesperson from CDWS said: 'It was noted that workers and staff from coffee shops situated around the Blue Hole site also took part voluntarily in the beach clean-up, which indicates the success of the awareness part of the campaign. We would like to also thank the Dahab officials who supported the event.'

Speaking at the clean-up day at the Blue Hole, Gianluca Genoni, said: 'We came last year in May for a photo-shoot and saw all this garbage around. We love this place very much, so we decided to ask Mares,



our sponsors, to join and support a clean-up here for the beginning of this season of training.'

Genoni has set many freediving world records and currently holds the world record for static apnea with a staggering 18 minutes 3 seconds.

Ten members of staff at Reef 2000, including dive club drivers and the compressor room team as well as instructors and Divemasters, cleaned up at Rick's Reef close to the famous Canyon dive site.

Reef 2000 diving operations manager Florian Herzberg said: 'We discovered lots of plastic bags in the water – they seem to accumulate there, so a crew of eight cleaned away as much as possible. The second cleaning team dived the Reef 2000 house reef and found (thankfully) hardly any plastic in the water. However, we carefully removed around 500m of fishing line.'

A total of 15 divers, staff and customers of Poseidon Divers took part in the beach clean up in Masbat Bay, Dahab. 'We picked up roughly 20 bags of rubbish,' said Sarah DeGraves of Poseidon Divers. 'Most of it was the normal stuff. Plastic bottles, plastic bags, lots of cigarette butts, crisps wrappers and so on.'

Orca Dive Club in Dahab organises regular clean-ups together with guests every two weeks, between the Three Pools and Golden Blocks dive site. It says this on-going commitment to clean up the area, which is peppered with Bedouin cafes, has made a huge difference.

Plastic, an oil-based product, represents a big threat to the ocean environment worldwide. In the Pacific Ocean there can be found the 'Great Pacific Garbage Patch'. Floating between Hawaii and the

US mainland, this floating plastic waste is the size of Texas and is growing. More than 80 per cent comes from land around the Pacific and North America.

There is an estimated 46,000 pieces of non-degradable plastic in every square mile of the ocean posing a threat to around 267 species. Plastic is responsible for the death of many seabirds, turtles, whales, seals and many other marine animals throughout the world. The chemicals contained in plastic also pose a threat to animals. A plastic bag may take anything from 450 to a thousand years to break down, but even when you reach that point, the dust of microscopic particles in produced could send fatal toxins down the marine life food chain.

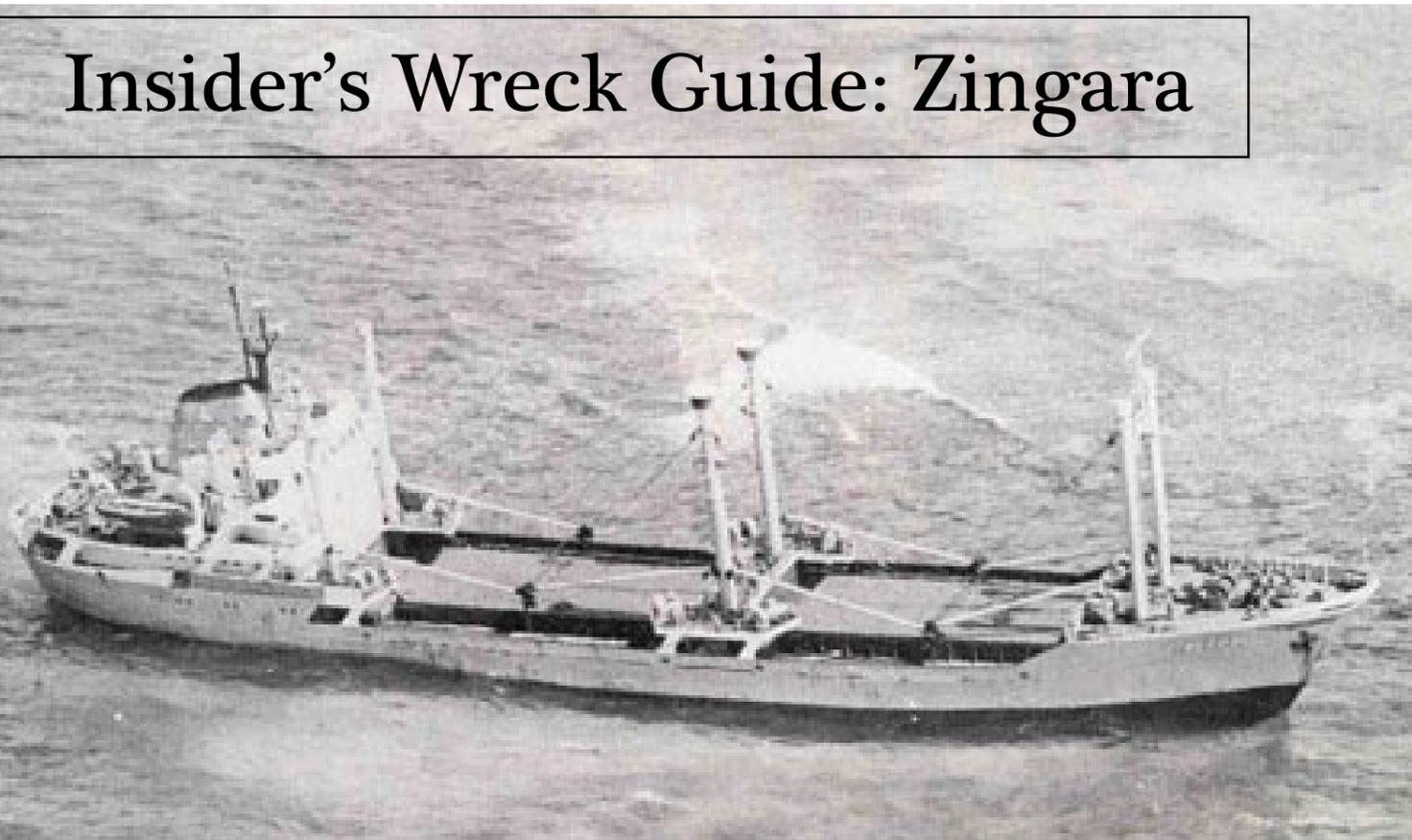
It's for this reason clean-ups throughout the world, no matter how small, can make a difference. PADI's Project AWARE Foundation is a champion of such events and provides free support and advice for divers throughout the world on organising clean-ups, as well as correct briefings to avoid disturbance to the reefs.

As a Project AWARE Clean-up Organizer centres can receive clean-up tools geared specifically to your event including data collection cards, certificates for volunteers, event organisation tips and more where available. Centres also commit to reporting their clean-up event data to influence change and inform policy decisions. Data can be reported in English, German, Italian, French or Spanish

Project AWARE has been supporting such efforts since 1993. For more information see the foundation website at www.projectaware.org.

If you or your community are planning any clean-ups, let us know by emailing charlotte.boan@cdws.travel

Insider's Wreck Guide: Zingara



Only when the wind changes and the sea is mirror-calm is it possible for divers to explore one of Sharm el Sheikh's lesser-known wrecks in the Strait of Tiran. John Kean explores the wreck, its history and the story behind its identity crisis.

On Tuesday, 21 August 1984, the Zingara ship left the port of Aqaba in Jordan. She was carrying a cargo of phosphate that a few hours later would end up strewn all over the reef of Laguna in the Strait of Tiran.

Few are familiar in Sharm with the name, 'Zingara'. The reason being that they know the wreck as the Kormoran. There is a logical explanation for this; despite several name changes during its seagoing life, the original name of this ship was indeed the Kormoran, it later became the Adamastos in 1976 and then the Zingara in 1980. So why does the oldest name survive and feature in many of the popular Red Sea guide books?

When divers found this wreck they saw a name etched onto the side of the ship near the bow area. Despite several paintings over, the raised lettering of the Kormoran remained, leaving little sign of any other name on the ship at the time of discovery.

In 1984 there was little diving in the area. The four reefs of Tiran were still the main attraction back then. So, let's call the ship by its proper name at the time of



the sinking, which was categorically the Zingara. Maybe changing the name of a ship is bad luck, but the Kormoran is not alone; the Salem Express, one of the biggest Red Sea casualties of all time was previously known as the Al Tahera, Nuit St George and the Fed Scameroni.

The evidence of the sinking of the Zingara all points to a navigation error, which is a little embarrassing given the name of the owning organization at the time - The Compagnia Montemare di Navigazione. Today, visitors to the Strait of Tiran can easily see that the rule of the waves is to keep to the right-hand side. Thus ships from Israel and Jordan should pass through the Enterprise Passage and ships travelling in the opposing direction should use the Grafton Passage. The Zingara seems to have had a disliking for both of these as not

only was it on the wrong side of the Strait; it ploughed directly into Laguna Reef adjoining Tiran Island. The extent of the damage indicates that the skipper believed he was navigating a clear patch of sea. Time of day is not noted but if early morning or late afternoon the Zingara may well have been navigating in flat water with light reflection allowing little sign of surrounding reefs. There is a lighthouse on both Jackson Reef and Laguna. Did it simply go the wrong side altogether?

The speculation continues and the wreck now rests in

one of the most exposed parts of Tiran, where it suffers a near-daily bashing from the northerly wind. This is why the daily boats can only visit in relatively calm weather when waves are not pounding the reef making entries and exits difficult. That said, when conditions are favourable, this wreck is well worth a visit. The Zingara was 80m long, weighed over 1,500 tons and travelled at around 12 knots. The damage suggests it went head on into the reef at full speed and jack-knifed in several locations. The wreckage is vast and it's difficult to see that it is a complete ship even though everything is present. It's also one of the shallowest Red Sea wrecks with average depths of just 3m to 6m. The top part of the stern is slightly out of the water allowing boat skippers to find it with relative ease.

It is difficult to photograph anything resembling the features of an intact ship, such as a bow or bridge, but there are many fine fixtures and fittings covered in hard coral that picture well in good visibility. The stern appears to have suffered least with many intact railings surviving. The rudder and propellers are also visible and give an indication of the size and power of the ship, which had a top speed of around 12 knots. The best time to dive this wreck is at high slack with a calm surface. The reef here is also worthy of a visit in its own right. Thousands of interconnected table corals surround the wreck. Because of the high wind and wave action here on an almost daily basis there



is little chance of soft coral growing successfully. Still, knowing the dates of sunken ships is an indication of the rate of hard coral growth upon them. The Zingara sinking was 26 years ago. Divers can witness the wreck being consumed by the reef and see how much hard coral exists today.

Despite modern communication methods and detailed electronic navigation facilities big ships continue to have a brush with the reef system of the Strait of Tiran. On only the 31 of December 2009 did the 55,000 tonne super container ship, the CSCL Hamburg, hit nearby Woodhouse Reef where it became stuck hard for ten days. Tug boats eventually removed the damaged ship leaving just Gordon and Jackson Reefs 'with their own wrecks'. The Louilla and Lara respectively have long since been local landmarks perched high and dry for all to see from land and air.

Perhaps the Zingara stands alone in being the only wreck to smash head onto into a reef. Other ships seemed to have suffered glancing blows and died more gracefully. In good conditions even novice divers can visit the wreck. A popular route, following a brief current check, is to drop in 50m behind the stern, reach a depth of around 18m and then ascend up the reef to the wreck. This gives divers the chance to see the amazing coral formations and then explore the wreck in the shallows.

Reef Traffic

Thirty years ago only a handful of desert travelling diving pioneers ventured below the surface off the Sinai. Now, thanks to a tourism boom, millions of bubble blowers from around the world enjoy the renowned reefs of the region. But what impact does this increased traffic have on the underwater environment? *Francesco Germi* reports.



In terms of economic development, South Sinai is a success story. In less than 20 years, activities in the region have gone from practically nil to representing over 20 per cent of the national tourism capacity and at least 25 per cent of tourism's contribution to the GDP. Tens of thousands of jobs have been created, and South Sinai tourism receipts contribute significantly to Egypt's balance of payments. However, such a spectacular growth also carries sensitive environmental challenges.

It is clear that natural resources are finite and cannot resist unlimited use. The idea that there is a limit – a 'carrying capacity' for human use – has to be embraced to ensure that natural resources are

not destroyed. Stakeholders (tourism operators, protected areas managers and local authorities) must ask themselves 'How much use can this area stand?' Many researchers have addressed this puzzle trying to find a technical answer, but success has been limited. The answer usually lies in a civil and political process backed by data.

Carrying capacity analysis was created as a method of prescribing the limits to development using numerical and computerised calculation with cold objectivity. It has not achieved much success in influencing government policy because of the complexity of the parameters and because politicians, managers, and administrators are reluctant to have their judgment pre-empted by a computer.

With carrying capacity, as with other biological analogies, human nature complicates the procedure for estimating limits. Some of the key components – such as tourist or user satisfaction – change when the users or their preferences shift. Therefore, in spite of simulation models, the actual carrying capacity limit – in number of users or any other parameter – may be a judgement call based upon the level of change that can be accepted.

Many observers and industry experts already point to the deterioration of the environment in South Sinai, and in particular the coral reef system and marine life, as the single largest threat to the long run growth of tourism. The marine ecosystems have a

limited carrying capacity, and there are indications that this carrying capacity has been exceeded, exhibited by a deterioration and loss of coral habitat due to: (1) marine pollution from raw sewage discharge from boats; (2) coastal development and construction; and (3) tourist related activities themselves (diving, snorkelling and boating). How much each is a contributing factor is not clear, nor is the degree of deterioration over time.

Although South Sinai has a healthy abundance of marine life, it is important to address to what extent potential deterioration of its marine life would reduce the overall attractiveness of the area as a tourist destination and put a brake on the growth of the sector.

Ultimately, to what extent deterioration of the coral reefs will translate into lost clientele over time is not clear. Yet, since tourism is the only engine of growth in South Sinai, it would be prudent to make every effort to mitigate the causes of coral reef deterioration, in other words to protect 'the goose that lays the golden egg'. Several measures have already been put in place to control damaging activities, and awareness of the problem is being promoted. The most crucial agents for preservation are the National Parks and CDWS, whose continued role is essential.

Coral reefs are not able to support an indefinite amount of recreational use. Clearly the total number of divers and snorkellers that can be sustained is dependent upon the total reef area made available for recreational activities. However, the total amount of reef area is fixed, and reef health is also dependent upon the maintenance of some closed areas within the protectorates to act as reproductive grounds for coral and fish. Other sites are unsuitable for recreational activities because of their distance from existing marinas (such as sites in the Gulf of Suez) or because of environmental conditions (such as areas in Nabq exposed to prevailing winds), and still other areas are closed for military purposes (such as Tiran Island). Ideally there would be also a mechanism for rotation of sites, with periods of closure allowing reef regeneration.

The damage inflicted by divers or snorkelers consists mostly of breaking fragile, branched corals or causing lesions to massive corals. Research indicates that reef communities can tolerate a certain level of degradation before irreversible changes in ecological structure occur. The United Nations Environment Programme (UNEP) recommends a sustainable carrying capacity of 5,000 to 6,000 dives per site per year as a general principle. However, recent research by the National Parks of Egypt showed that some sites in the Sharm el Sheikh area were receiving up to 60,000 dives per year, with an average of 15,000 dives per year across all sites in the area. Given

the economic significance of the diving industry, the South Sinai Protectorate's policy is to encourage an equal distribution of 15,000 dives per year across all sites rather than reduce the number of divers. However, this study did not consider the number of snorkelers and there is grave concern that the carrying capacity of reefs is currently being exceeded.

This limitation of reef space necessarily restricts the number of snorkelers and divers that can be accommodated without degrading the reef ecosystem health. In addition to the issue of ecological carrying capacity is that of amenity carrying capacity, with divers preferring sites uncrowded by other users.

In order to address this bottleneck, a realistic strategy is needed to plan the development and management of recreational reef use. It is clear that the current number of divers and snorkelers per site cannot be increased without incurring ecological degradation. South Sinai Governorate has already limited the number of dive boats licences to 300 in order to restrict growth in number of users. Indeed, there is a need to reduce the number of visits per site by spreading the current load more widely. Options that might be considered include the development of a new marina between Sharm and El Tur, the opening of new dive sites in the Straits of Tiran, and the encouragement of shore diving in Nabq and elsewhere along the coast by guaranteeing beach access.

Carrying capacities of reefs may be artificially raised through management interventions such as the provision of additional mooring buoys. Moreover, it has been demonstrated that the education of divers and snorkelers and their guides has positive effects on reducing impact. However, such interventions are unlikely to be capable of resolving the issue by themselves, and need to be considered as part of a wider plan to address the core issue of limited reef space.



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Freediver Federico Mana
Image courtesy of Federico Mana

One breath wonders: freediving world records

Few places on the planet see as many freediving records set as the Egyptian Red Sea, particularly Dahab – a place many dub the Mecca for breath-hold divers. For those who know little of the sport other than deep depths and unbelievable breath-hold times, it's all too easy to be confused by the number of different competition disciplines. Without fins, variable weight, static apnea, dynamic with fins. What does it all mean?

Competitive freediving covers a huge range of different physical and breath-hold abilities going above and beyond the he-who-dares-to-go-deepest ethos depicted in Luc Besson's famous movie *The Big Blue*. The No Limits competition depicted in this cult status movie is the one that receives by far the most column inches in mainstream media. Understandably so, as the depths reached are literally (and most likely permanently) breath-taking for the majority of human bodies.

The athlete who competes in the No Limits Apnea competition descends with the help of a ballast weight and ascends via a method of their choice. Most divers use a weighted sled to dive down and an inflatable bag to return to the surface. The current official record for the deepest No Limits freedive is 214m, held by Austrian Herbert Nitsch. The women's world record has been held for eight years by British freediver Tanya Streeter, who reached 160m in 2002. In pursuit of this particular record, there have been many high profile fatalities: Loic Le Ferme, Pippin Ferreras and Audrey Mester to name just a few.

Competitive freediving is currently governed by two international associations: AIDA (International Association for the Development of Apnea) and CMAS (World Underwater Federation).

AIDA International currently recognises only eight categories as official disciplines for world records and competitions. According to this particular organisation, other kinds of 'similar' or 'different' categories can only be considered as 'demonstration disciplines' without any 'sanctioned' world record.

As well as No Limits, AIDA recognises the following:

Constant Weight Without Fins: The freediver uses only his or her own muscle strength to descend and ascend, without the use of propulsion equipment and without pulling on a rope. Weight remains constant throughout. Considered the most difficult depth discipline in terms of physical endurance. This discipline requires 'perfect coordination between propulsion movements, equalisation, technique and buoyancy' says AIDA. **Men's record 95m held by William Trubridge (New Zealand). Women's record 62m held by Natalia Molchanova (Russia).**

Constant Weight: Using his or her fins or monofins and/or with the use of the arms to descend and ascend without pulling on the rope. Only a single hold of the rope to stop the descent and start the ascent is allowed. Weight carried must remain constant throughout the whole dive. **Men's record 124m, held by Herbert Nitsch. Women's record 96m held by Sara Campbell (UK).**

Dynamic Without Fins: A non-depth related discipline. The freediver travels in a horizontal position underwater in an attempt to cover the greatest possible distance. All propulsion aids are prohibited. **Men's record jointly held by Dave Mullins (New Zealand) and Tom Sietas (Germany) who both reached a depth of 213m. Women's record is 160m held by Natalia Molchanova.**

Dynamic With Fins: As with the Dynamic Without Fins, although the use of long fins and monofins is permitted and swimming movements with arms are not. All other propulsion means are prohibited. **Men's record 250m held by Alexey Mochanov (Russia). Women's record 225m held by Natalia Molchanova.**

Static Apnea: As the name suggests, the freediver remains still while holding their breath. Often attempted in a swimming pool, the freediver holds his or her breath for as long as possible. Under AIDA rules, respiratory tracts must be submerged. **Men's record 11 minutes 35 seconds held by Stephane Mifsud (France). Women's record 8 minutes 23 seconds held by Natalia Molchanova.**

Free Immersion: Without the use of propulsion equipment, the freediver ascends and descends by pulling on the rope only. Dubbed as 'the depth discipline with the purest sensations' because of the noticeable feel of the rush of water over the body. Using mainly the arms, freedivers can tire more quickly in this discipline than most. Can be done headfirst, feet-first or a mix of the two – this usually depends on a freedivers method of equalising. **Men's record 120m held by Herbert Nitsch. Women's record 85m held by Natalia Molchanova.**

Variable Weight: The freediver descends with the help of a ballast weight and ascends using his or her own strength: this can be arms and/or legs and/or pulling on the rope. The only discipline other than No Limits to use a weighted sled for descent. **Men's record 142m held by Herbert Nitsch. Women's 122m held by Tanya Streeter.**

All world records mentioned were recognised by AIDA International at the time BLUE went to press.

CMAS competitions also include speed endurance races and relays. The Jump Blue discipline (also known as 'the cube'), for instance, involves the athlete covering the maximum distance in apnea around a square of 15m each side situated at a depth of 10m. This event takes place in open water.

There are a number of other records held in breath holding which are not specifically recognised by these two freediving organisations. The world record for a person holding their breath underwater is currently 18 minutes and 3 seconds by Italy's Gianluca Genoni (as featured in *Green Team* page 16). Although his and other records are recognized by Guinness World Records, they are not recognized by AIDA and CMAS, which do not allow for such things as the breathing of pure oxygen.

For more information about AIDA International, see its website www.aida-international.org. For CMAS see its website www.cmas.org.

Jargon buster

Normoxic, travel gas, bail out, Hogarth...mean anything to you? For most recreational divers, most of these terms would call for a cheeky Google search. Technical diving instructor *Cath Bates* attempts to save us from Wikipedia weariness by translating the common terms used by the divers in twin-sets in her own unique style.

all images by Nigel Wade

EQUIPMENT:

Travel Gas – not the air you share in a Sharm local bus, but the tank you will breathe from while travelling to another depth – during ascent and descent. You will then change to your 'back gas' (in the twin set) or a richer mix.

Bail Out – a common rebreather phrase. This is an open circuit gas that will get you out of a sticky situation if you encounter a problem on the closed-circuit system. This can safely be breathed at the maximum depth of the dive.

Manifold – Twin tanks with a central isolation valve. This enables the diver to self-rescue in the event of a failure. He/she can stop catastrophic loss of gas by isolating the problem and then shutting down the malfunctioning valve. The manifold usually holds your 'back gas' (the gas you wear on your back).

Stage – sounds like the platform the teckkie dive on the boat will step up to in order to discuss his complex dive plan at louder than necessary volume. No; a stage is actually a tank that extends the working part of your dive, usually put at intervals for collection part way through. It stems from penetration diving. However, most of us call side-slung cylinders 'stages' even when we carry them throughout the dive.

Hogarth – the method of wearing your long hose primary regulator under one arm, across the chest and around the back of the neck. Originates from Florida cave diving pioneer William Hogarth Main.

Hydrocarbons – Oils or silicone fuels – dangerous substances to avoid when filling tanks. Potentially highly flammable when in contact with high percentages of oxygen and heat of compression.

Fuel Cell – An analyser sensor that uses a chemical reaction which in turns reacts with oxygen and converts it into a voltage. This is how



you can measure how much oxygen is in the tank.

Bungee – It isn't a safety chord to bring you back from unfathomable depths, but an accessory to keep equipment streamlined or stowed away neatly. Must be black or you are definitely deemed uncool.

PATHOLOGY (that's illnesses to you and me):

Paul Bert Effect – a term for oxygen toxicity when a diver has short-term exposure to a high dose of oxygen partial pressure. Paul Bert was a French professor of physiology who wrote a piece of literature called *La Pression Barometrique*.

Lorraine Smith Effect – when a diver has had long term exposure to a low dose of oxygen (typically 0.5-1.2 partial pressure O₂) he may have symptoms which are similar to pneumonia. J Lorraine Smith was a Scottish researcher from the 1800s (not a woman by the way).

The Chokes – what happens after your instructor's post-dive cigarette, but in technical circles refers to the bubble formation that interferes with proper blood circulation in the lungs. Pressure in the pulmonary artery rises and the lungs fill with fluid.

Hypoxia – Insufficient oxygen caused by reduced pressure of O₂ in inhaled gas. Impaired oxygenation of the blood.

Hyperoxia – Otherwise known as CNS (central nervous system) oxygen toxicity. Exposure to elevated pressures of oxygen. This is why we have an 'MOD' (explained below).

Hypercapnia – excessive levels of carbon dioxide. Can occur because of poor performing regulators, skip breathing and heavy work.

Normoxic – when the pressure of inspired nitrogen is .21 at 1 ata (atmosphere absolute). What you are right this second breathing on land (unless, of course, you are on a deco stop with a very soggy edition of BLUE magazine in your hands).

Subclinical DCI (decompression illness) – the fatigue one feels after diving. Asymptomatic and allegedly not life-threatening.

ABBREVIATIONS:

EAN – Enriched Air Nitrox. Air that has been enriched with a higher percentage of oxygen – the fuel for your body. The gas of kings.

MOD – Not an Eighties throwback with a scooter, this is Maximum Operating Depth. The maximum depth to dive with a gas mixture containing a specific oxygen content. Crucial to know when diving with EAN so to avoid CNS oxygen toxicity/hyperoxia.

EAD – Equivalent Air Depth. The depth at which air has the same nitrogen partial pressure as your nitrox blend. You should know this if you are planning a nitrox dive on air tables.

END – Equivalent Narcotic Depth. Calculate a depth where air has the same total partial pressures of oxygen and nitrogen combined as your actual breathing gas.

VPM – Varying Permeability Model. An algorithm that aims to minimise the overall volume of bubbles, by keeping the external pressure large and inspired gas pressures low during decompression.

RGBM – Reduced Gradient Bubble Model. An algorithm that seeks to control bubble growth and overall volume by slower and deeper ascent staging.

UPTD – Unit Pulmonary Toxic Dose. Erik C Baker explains: 'One UPTD is the degree of pulmonary oxygen toxicity produced by breathing

100 per cent O₂ continuously at a pressure of one ata for one minute.'

NOAA – Not the fella whose ark you climb onto with your Force Fins, but the National Oceanic and Atmospheric Administration; the agency that prints the accumulated CNS oxygen exposure table. The organisation also monitors the environment, examines changes in the oceans and provides weather, water and climate forecasts across the USA.

RMV – Respiratory Minute Volume. Sometimes called a SAC (surface air consumption) rate, your RMV is how many litres of air you breathe at the surface every minute. However, this differs from SAC as it takes workload and environmental conditions into consideration.

ER – Long Live Her Majesty yes, but this also stands for Extended Range. Diving doesn't just mean going deeper. It is also about extending your dive time by utilising different gases.

KISS – Keep It Simple and Streamlined (or more colloquially Keep It Simple Stupid). The KISS philosophy avoids task loading during a dive because you know where it all is and it is easy to get to.

USTs – Underwater Scary Things!

TERMS OF ENDEARMENT:

Pressure Gradient – There is a drop in ambient pressure as you ascend from one depth to another. The pressure gradient is the differential between the pressure of the dissolved gas in your tissues and that in your lungs.

Virtual Overhead – An imaginary ceiling, such as a required decompression stop.

Deep Stop – Short decompression stops for one to two minutes at intervals. Designed to limit the magnitude of over-pressure gradients and reduce Subclinical DCI.

Air Break – A five minute swap onto a 'leaner' mix such as a travel gas or back gas after a long stint on a mix with a high partial pressure of oxygen. To reduce the risk of CNS Oxygen Toxicity.

Best Mix – Not a free double Jack Daniels and coke. A best mix is the optimum gas to use for a dive, calculated based on your MOD and chosen partial pressure of oxygen.

Rule of Thirds – originates from the cave diving community. You have a third of your air to go into the cave with, a third for coming out and a third left in reserve. This rule is often adopted even when there is no penetration and is used as a contingency in case of delay, higher gas consumption than planned or more decompression needed.

On the Fly – as you are moving between deco or deep stops. Also describes how cool us depth junkies actually are!

So there you have it; you now speak tech. However, you can talk the talk but can't walk the walk until you have signed up to get your technical wings! Then all will be revealed in how to control your free radicals; how an extra, extra long hose doesn't always perform properly; how to ensure you don't have a dirty scrubber in your box; and what you can do with a nice length of surgical tubing... (Ed's Note: Yes, we let Cath get away with this one, because she assured us this was purely about technical diving)

Catherine Bates is part of the Technical Team at Camel Dive Club. She is also a member of the double entendre society. (Ed's Note: that explains everything).

SHARM'S AMAZING RACE

Egypt's resident watersports professionals report on their favourite short breaks.

Jumping on boats and lectures in the classroom was put on hold for one day, as I, and my three co-workers, Anna, Sophie and Kerry participated in the Sharm's Amazing Race, an event for charity, on 21 March this year. We started off from the beach in Old Market, running for our lives to get hold of a falafel, a nail, honey and other small items, all needed to get our next clue, and keep us in the race. The goal: raise money for the children's hospital in Cairo.

With 200 L.E (approximately 28 Euros) in our pocket, we had to go by public transportation around Sharm el Sheikh. After getting the falafel and paddling a kayak, we headed up to the Scandinavian dive centre Colona Divers, where we had to sort snorkelling papers into the correct languages, Finnish, Danish, Norwegian and Swedish. Lucky for our team, as we had two Scandinavian team members.

After the first checkpoint our team was fifth in the one-day race. We had hired a taxi to help us get as quickly as possible between the different clues. Unluckily for us, we had one of the rare taxi drivers in Sharm who actually drives within the speed limit. After jumping ropes, doing push-ups and balancing on a big ball at the gym in Viva

mall, we were overtaken by team two and almost got eliminated at the first pit-stop: The Pirates bar.

A smart move on a "roadblock" outside of Red Sea Diving College meant we managed to overtake two teams and got the clue to follow Michael Schumacher's footsteps at the go-cart course in Ghibli. Even Sophie driving like the wind didn't help us much when nobody in our team knew where the golf course was, the location of the next challenge. After making some wrong turns trying to find it, our team fell behind and we were eliminated at the next pit-stop in Soho square. Despite this, we had loads of fun.

Running around, kayaking, go-carting, ice-skating and other fun stuff, and while at the same time collecting money for charity is something I would do any day.

Eirik Thommessen

For more information on the charity event, see Facebook page Sharm's Amazing Race



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Win a liveaboard trip for two worth 700 Euros

BLUE has teamed up with Sharm el Sheikh based liveaboard operator **Sea Queen Fleet** to offer a lucky reader a three or four day safari to the Northern Red Sea sites of Ras Mohammed and Tiran or the wrecks of the Suez.

The prize, worth around 350 Euros, includes accommodation in a fully air-conditioned double cabin, all dives (up to three in the day and one night dive), cylinders, weights, dive guide, full board meal plan, plus soft drinks. Subject to availability, prize winners can choose the safari on board either Sea Queen 1, South Moon or Golden Emperor 1.

For more details about the Sea Queen liveaboard fleet see its website www.seaqueens.com/our-fleet.html.

To enter: simply visit www.seaqueens.com and tell us the answer to this simple question:

How many boats are there in the Sea Queen Fleet?

Send your answer by email to blue@cdws.travel

Closing date: 30 August 2010

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Sea Queen 1



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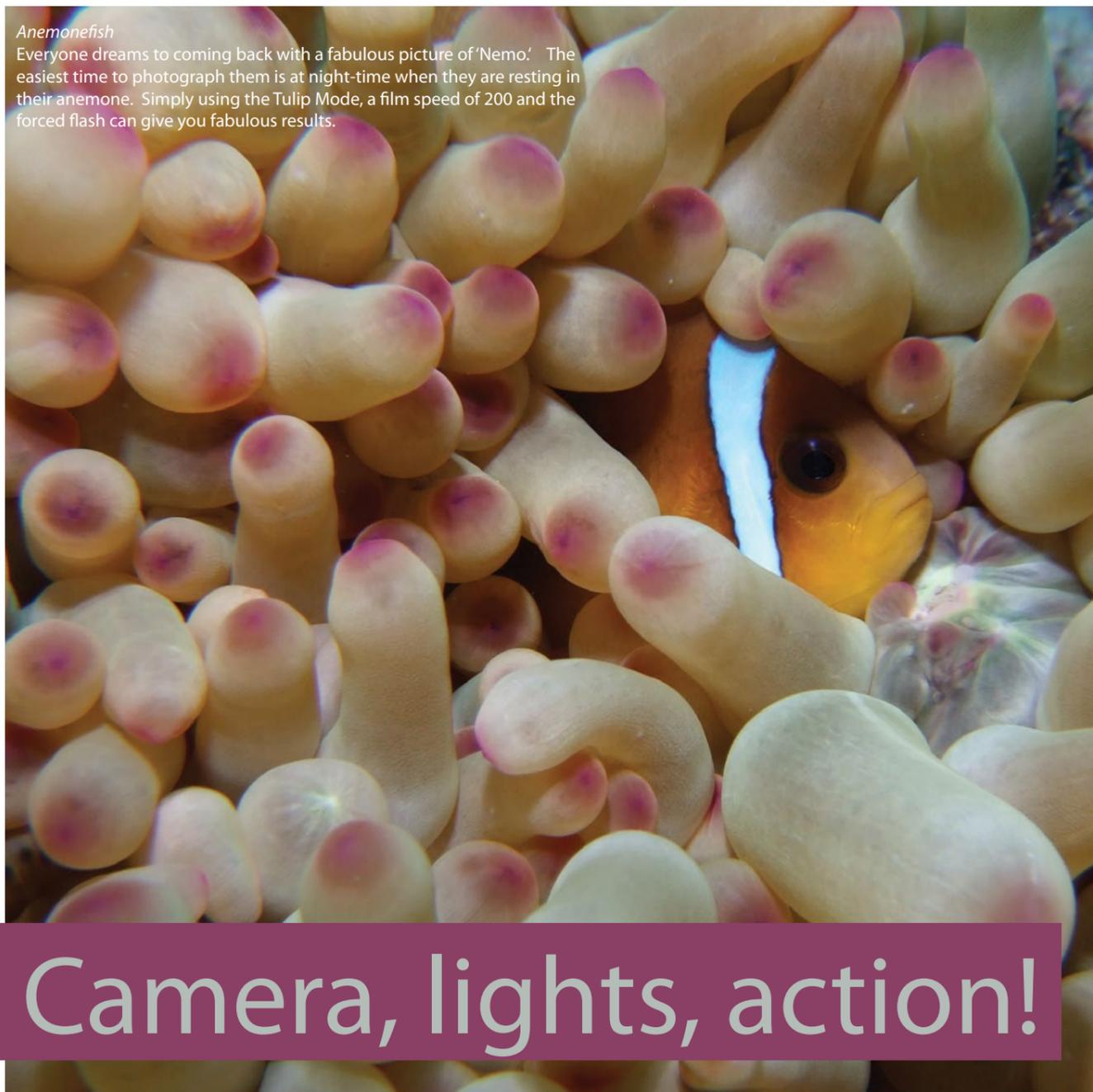
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Anemonefish
Everyone dreams of coming back with a fabulous picture of 'Nemo.' The easiest time to photograph them is at night-time when they are resting in their anemone. Simply using the Tulip Mode, a film speed of 200 and the forced flash can give you fabulous results.

Camera, lights, action!

The use of flash and strobes when taking underwater pictures can really enhance the image. But what's the best way to use them with your compact? *Maria Munn* explains.

There is no better way to bring out the beautiful underwater colours of the Red Sea than by using a strobe or a flashgun (two different names for what is essentially the same thing). We know manual white balance is an excellent way to stop your underwater photographs looking blue, but the difference obtained by simply using your built-in flash (if you are within a foot of a small subject) or by using an external flashgun is staggering, particularly if you are photographing the red and pink overhangs that are found in the Red Sea.

Torches or spotting devices are another way to help provide optimum focus capabilities for your camera when taking a photograph. These provide a continuous light source. Caution must be taken, however, so as not to frighten your subject by shining a light continuously

in its eyes. Some subjects such as frogfish, will move away very fast when confronted with a shining light, and others such as pufferfish will be even more determined to turn in the opposite direction to the camera. However, such devices can be very useful tools for helping your camera to focus when night-diving and are well worth the investment.

Getting into strobe photography can be quite daunting for any beginner, but again, time and practice with your set-up on land before getting into the water will ensure optimum results.

But which strobe and accessories do you need? Once you start using a flashgun or strobe, you'll never want to shoot without it again. When choosing a strobe, always make sure it has a fast enough recycle time for the kind of subjects which you would like to shoot. This is the length of time that it takes for the strobe to fully charge between shots.

If you are interested in close-up and macro subjects and their habitats

or abstract shots, then a small strobe such as an Intova, Fuji Remora, Nano, Epoque 150 DS or Sea & Sea YS 25 will bring your little subject lots of wonderful colour.

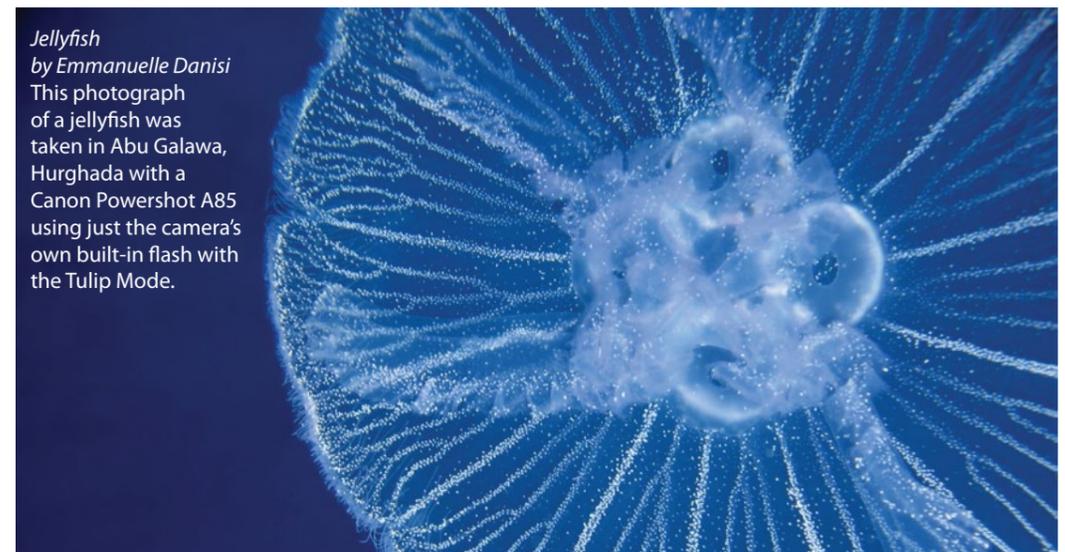
Don't forget to make sure you use an external diffuser for your strobe to help soften the light and avoid any hotspots to your close-up image. If you forget to bring one, then covering your strobe with a plastic bag or even cutting out a milk jug and putting it on the front of the strobe can help. I've even had a course guest search the local supermarket trying out the coffee jar lids to fit a piece of acrylic on the end of his torch to help soften the light underwater.

Choose the minimum aperture to give greater sharpness to your subject. This will be an aperture of f8 for most compact cameras, or simply pressing the tulip icon on the back of your camera will give you the same result. For those with full manual controls, choosing an aperture of f5.6 can help to bring more light into the subject's background and give you a picture with a record of its habitat. You can change the darkness of your subject's background by using either the minus setting of the Exposure Compensation Tool or by increasing your shutter speed.

Finally, you need to tweak the strobe's power output to achieve the correct exposure. All of this comes with time, practice and lots of patience.

In the next issue, an introduction will be given to wide-angle techniques to help you capture those stunning overhangs that are iconic to the Red Sea.

Best of luck and wishing you lots of happy, safe shooting.



Jellyfish
by *Emmanuelle Danisi*
This photograph of a jellyfish was taken in Abu Galawa, Hurghada with a Canon Powershot A85 using just the camera's own built-in flash with the Tulip Mode.



Diver photographing the reef - Red Sea



Puffer Fish
Using a torch can be a great substitute for a strobe to add colour to underwater subjects, but always respect the marine life and be careful with shyer subjects so as not to scare them.

Maria's forthcoming book *Underwater Photography for Compact Cameras* is now available to buy. From the beginner through to the more advanced snapper, this book will inspire and show you how to take beautiful underwater photographs in an easy-to-understand way. For more information on ordering the book, email Maria at maria@oceanvisions.co.uk or visit www.oceanvisions.co.uk

Egypt
where it all begins

if yellow
is your colour,
dive in the
red sea.

Whatever your colour, you'll find it and a thousand others in the magical Red Sea. For safety and enjoyment, book your diving with a CDWS member. See www.cdws.travel for a list of legal diving operators in Egypt's Red Sea

Image: Kimmo Hagman



www.cdws.travel

SNORKEL SITE: EL QUSEIR

Situated 85km south of Red Sea mainland town of Safaga, El Quseir is an extremely laid back resort close to rich coral reefs, teeming with marine life. BLUE asked El Quseir based dive club **Pharaoh Dive Club** to pick three of its best snorkel sites.

Dugong by Thomas Heckmann



Zerib Kebir

Zerib kebir, also known as Kilo Ashara (ten kilometers in Arabic) as it is nearly 10km south of El Quseir. The conditions here are ideal for snorkellers as there is a large, shallow, sandy entry area that leads north to an area full of beautiful and colourful hard and soft corals. The distance from the entry to the coral garden is around 300m. There is usually a slight current running on the surface, but snorkellers go against the current on the way out and back with the flow. It is full of well known Red Sea inhabitants, as well as the occasional eagle ray passing by on the outside of the reef. If you head south, you will find a canyon system encrusted with hard coral.

Fanadir Reef

Fanadir Reef is an area where dugongs are often spotted. The entry point is over a reef top with sea grass (ideal dugong habitat) in the north and a plethora of Red Sea reef fish in the south. Dolphins also often pass by this reef in the morning. The corals here are not as colourful as the more shallow sites, as the depths here are around 12m and there are large sandy areas. However, the chance to see a dugong or dolphin more than makes up for this.

Mangrove Bay

Mangrove Bay can be reached by both boat and by shore. There are extremely colourful coral gardens in both the south and north areas of the bay. Eagle rays are common visitors here and sometimes even manta rays pass by here. This large bay is fringed by mangroves on its west side, a particularly interesting sites for those interested in marine biology.

Special thanks to Pharaoh Dive Club, El Quseir (www.pharaohdiveclub.com) for its help with this feature



For a full list of legal dive and snorkelling centres operating in Dahab see the CDWS website: www.cdws.travel

Heavy breathing: the weighty issues of 15-litre cylinders



If you have only seven days to dive on your Red Sea holiday and explore famous sites such as the Thistlegorm wreck, understandably you want to maximise your underwater time. Nitrox lengthens your bottom time by reducing your exposure to nitrogen, so is always a popular option in these waters, where the depth of most sites is ideal for this gas. For so called 'air guzzlers', however, the size of the cylinder is perhaps more of concern when it comes to time in the water. Is swapping a standard 12-litre scuba tank for a 15-litre the best way to lengthen your dives if you are prone to using a lot of air? What about the increase in nitrogen intake? What about the weight strain of a heavy 15-litre tank? Dr Anke Fabian investigates.

Let's take a brief look at the history of the scuba cylinder. In the very early underwater days the diver was supplied with air via an 'umbilical cord' hose from the surface. This was in the really early days, of course and there were many problems associated with the long, fragile air hose.

In 1865, the first compressed air breathing apparatus with

Fig 1.



a demand system was developed by two French inventors, Benoit Rouquayrol and August Denayrouze. This allowed short periods of diving without an air line to the surface. The 'Rouquayrol-Denayrouze' was the ancestor of our modern scuba cylinder (see figure 1 and 2). In the late 19th century, the industry began to manufacture high-pressure air and gas cylinders. This prompted a few inventors down the years to design open-circuit compressed air breathing sets, but they were all constant-flow, and the demand regulator did not come back until 1939.

Today, industrial manufactured scuba cylinders are offered in a variety of different materials and sizes, which can be quite confusing. The most common materials are steel or aluminum. They differ considerably in regards to their weight and buoyancy depending on size and air-volume in litres (table 3).

First, have a look at the weight, because this is what the diver has to carry on his shoulders and what places a strain on his or her back. Back in the early days divers were made of sturdy stuff. According to early



Fig 2.

diving equipment developer Hermann Stelzner (1935): 'A diver has athletic muscles, healthy lungs, a strong heart and a flawless function of all organs.'

The developments in scuba diving over the past ten years shows clearly that this is no longer reality. Not only has the diving population increased (the number has quintupled in the last ten years) but also the composition of the divers. Women, children, older people and, ultimately divers with physical or mental limitations, clearly disprove Stelzner's statement. Okay, all very well, but what has all this got to do with scuba cylinders? The answer is simple: the load on the back, the strain on the spine and the pressure on the intervertebral disks.

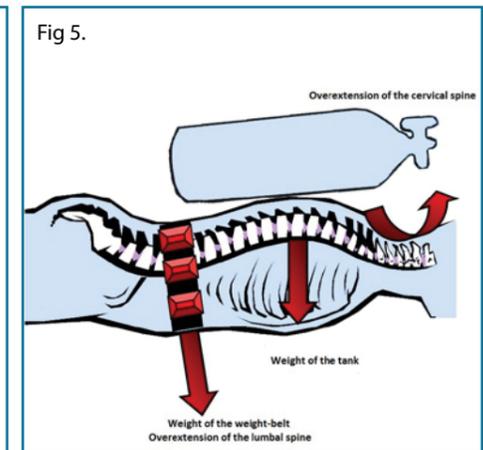
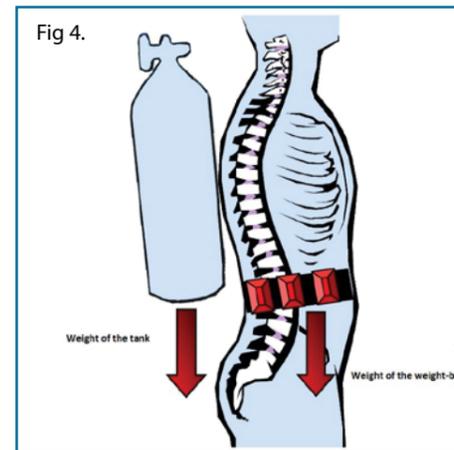
The typical holiday diver is not Arnold Schwarzenegger traveling directly from the gym to the Red Sea, nor Jane Fonda coming straight from her pilates class to the dive centre.

Holiday divers are often burned out and tired from efforts at home and their back muscles are not so used to bearing the weight of a heavy cylinder with ease. A rocking boat; climbing up and down on a steep ladder on the boat; or an exhaustingly long shore entrance with full equipment are all likely to add more strain on the back muscles.

Most people in the second half of their lives experience occasional back pain. Generally, there is no other serious reason behind the complaints other than being office desk-bound; doing little exercise; and/or having a poor posture which lead to muscle imbalances with painful muscle spasms. If no sportive action is undertaken whatsoever, those mild disorders can become a chronic and a more serious medical conditions as they wear down the disks and the small joints between the vertebrae or even irritate the nerve roots. Generally with older people their overall fitness is down, as the cardiopulmonary system hasn't faced strenuous sports activity for some time. Therefore choosing a bigger cylinder with more air just to make sure that one is on the safe side with regards to air time is very

Cylinder	Air	Weight on land	Buoyancy					
Material	Volume (litre)	Pressure (bar)	Volume (litre)	Weight (kg)	Empty (kg)	Full (kg)	Empty (kg)	Full (kg)
Steel	12	200	2400	3.0	16.0	19.0	-1.2	-4.3
	15	200	3000	3.8	20.0	23.8	-1.4	-5.2
	2x7	200	2800	3.5	19.5	23.0	-2.0	-5.6
	8	300	2400	3.0	13.0	16.0	-3.5	-6.5
	10	300	3000	3.8	17.0	20.8	-4.0	-7.8
Aluminium	2x4	300	2400	3.0	15.0	18.0	-4.0	-7.0
	2x6	300	3600	4.6	21.0	25.6	-5.0	-9.6
	9	203	1826	2.3	12.2	13.5	+1.8	-0.5
	11	203	2247	2.8	14.4	17.2	+1.8	-1.1
	13	203	2584	3.2	17.1	20.3	+1.4	-1.7

Fig 3.



Depth	12 l/200 bar (2400l/1800l)	Time - difference	15 l/200bar (3000l/2250)
10 meters	45 min	11 min	56,25 min
20 meters	30 min	8 min	37,5min
30 meters	22,5 min	6 min	28,1min
40 meters	18 min	4,5min	22,5min

Fig. 6: Table 6: comparing dive times at different depths

often a poor choice. Considering the size and the weight, these are two good reasons to choose the smaller cylinder in regards of to sport medical/orthopedic needs. The skeleton may not be the part of the body most affected by scuba diving, compared with the ENT (ear, nose and throat) area, the lungs or other tissues, however, existing skeletal problems could worsen because of unfamiliar strenuous effort.

On land

The weight forces are parallel to the spine. The result is a strong pressure on the intervertebral discs, particularly between the fourth and fifth lumbar vertebral body. This is because the biomechanical stress is greatest in this part of the back (see figure 4).

The diver has to carry the load of the tank on his shoulders, which puts pressure on the disks – and – in case of a weight-integrated jacket

– the additional kilograms of the weights as well. Choosing a 12-litre steel cylinder filled with 200 bar of compressed air adds up to 19 kg plus the required weight (on average 6 to 10kg). Counting only this – one might end up with 29 additional kilograms – and this is only the small cylinder. Choosing the bigger tank with 15 litres – there are another 4 kilograms on top. Just imagine being fully equipped and having to carry four bottles of water in addition – quite a load, right?

For the first two or three days the diver is generally unaffected. The back usually starts to signal problems from the third day, asking for a rest or a massage.

At this point it is important to mention that those considerations are essential in children's diving. Children must have cylinder according to their body length to avoid damaging of the growing spine.

Underwater

The heavy load seems to go, but other adversities are waiting for the diver. The horizontal posture with the cylinder on our back – particularly the larger ones (15-litre or even 18-litres) in combination

with the weight of the belt pulling downwards leads to an overextension of the cervical and lumbar spine. A position which is not tolerated for long (figure 5). In spite of weightlessness, this means stress for the back.

Let's look at what we actually gain: More air...well, a bit more of air. The difference between a 12 and a 15 litre cylinder is basically three litres of air (assuming we are in normobaric conditions). As the cylinder contains compressed air up to 200 bar – we are talking about 200 times three litres, totaling 600-litres. That sounds like a lot of air. But we should keep in mind that our breathing capacity underwater increases according to the depth.

A 12-litre tank filled with 200 bar of compressed air contains 2400-litres, a 15-litre cylinder consequently 3000-litres. This is what we have available in total. If we consider the safety aspect, we will surface at 50 bar. That gives us 1800-litres in a 12-litre tank and 2250-litre in a 15-litre tank available air supply.

One normal breath taken at the surface has a tidal volume of approximately 600 millilitres. We breathe approximately 12 times per minute. Thus the breathing rate or respiratory minute volume (RMV, in litres per minute (lpm)) is between 10 and 25-litres per minute in normal conditions. At times of high work rate or panic, breathing rates can rise to 100-litres per minute.

According to the ambient pressure (plus one bar every ten metres), the diver's lungs are compressed (Boyle-Mariott's law) and this must be compensated by breathing gas at a pressure equal to ambient water pressure. Therefore, it requires twice as much mass of gas to fill the same volume of the diver's lungs at 10m as it does at the surface.

- » not recommended in medical disorders of the spine or back pain
- » can be used to cover and compensate for unfit and a poor condition

Are those who often use these generally less fit?

Not necessarily. Lack of fitness can be one cause for higher air consumption. Another reason could be a high genetic aerobic-metabolism, which requires more oxygen in certain people. Usually, individuals with a higher body mass index are using more air than slim or small persons.

Is the load of a very heavy tank unhealthy?

- » It can get unhealthy when medical preconditions are existent. These can get worse.
- » It also depends on the shape and body constitution. A 190cm bodybuilder is carrying the 15 or even 18-litre tank with ease, whereas a small tiny lady in the second half of her life might hardly be able to lift it on her back not to mention carrying it a longer distance

Do 15-litre not just increase your intake of nitrogen?

- » Usually, the longer the bottom time – the higher is the nitrogen uptake – at least in the slow tissues (i.g. tendons, cartilage, ligaments)
- » Speaking in terms of decompression, a longer decompression stop can also allow a higher nitrogen desaturation of the faster tissues (i.g. fat, brain, blood), or middle tissues (i.g. muscles, inner organs)

15-litre are often used by divers who use a lot of air, but are these safe?

- » Yes and no – depending on the dive plan.
 - » Using a bigger tank can ensure enough air supply for possibly necessary buddy breathing when diving with an insecure or unstable buddy with a known high air consumption. This would be a positive safety aspect.
 - » The dive guides have the responsibility to manage and guide the diver. Under certain circumstances the guide might be tempted to choose an inappropriately large tank for a diver to facilitate a longer dive for the whole group. This is the wrong decision!
- Should divers be looking at why they use so much air, rather than just increasing the size of their cylinder?**
- » Yes – definitely.
 - » If one is running out of air before the buddy on a regular basis, one should consider breathing techniques, body-constitution, fitness and psychological aspects such as tension underwater before simply grabbing a bigger tank without thinking.

In a nutshell:

It may be a wise decision to choose a bigger cylinder, just as much as it could be completely unnecessary or even unhealthy and dangerous. The decision should be made thinking of the individual diver and his/her planned dive

Plan your dive – dive your plan – and choose the right equipment for it.

Please note that the above considerations are only relevant to the recreational holiday diver. In technical diving, deep-diving, commercial diving – the issues and the background are completely different.

To calculate the quantity of gas consumed one can use the equation:
 gas consumed = breathing rate x time x ambient pressure.

To calculate the time:
 time = gas consumed / (breathing rate x ambient pressure)

Thus, a diver with a breathing rate of 20-litre per minute will consume at 30 metres (4 bar) the equivalent of 80-litre per minute (4 x 20) at 1 bar (80-litre per minute at the surface). If this diver only had a 12 litre 200 bar cylinder to breathe from (2400l), the gas in the cylinder would be exhausted after a little over 2400/80 = about 30 minutes, if we would use up the whole tank. Considering we surface at 50 bar – the calculated time will be reduced to 22,5 minutes.

Every diver may calculate the time using a 15 litre tank.Yes – well done! It is: 28,125 minutes.

So – let's face it: we gain 5,5 minutes!

Of course, this calculation is too simple as the diver's profile varies in depth. To calculate it accurately, we need a mixed calculation. We can either use equations and do it by hand or we can elegantly switch on our computers, download a decompression profile and let the computer do the work. The results are always astonishing: we don't gain much when we dive deeper than 20m! The biggest advantage in regards of prolonging the dive time shows in the shallower depths, between 10 and 20m (figure 6).

The advantages:

- » enough air supply for required prolonged safety stops
- » good for those with a high air consumption as a genetic or given body-precondition

The disadvantages:

- » unhealthy impact on our spine

SAFAGA



The marine life here is vibrant and varied. The centre of the bay is where you will find a beautiful, shallow coral garden perfectly suited for beginners.

A former commercial harbour, Safaga has become an increasingly popular choice for visiting divers because of its close proximity to excellent wreck and high-energy reef wall dives. Situated 53km south of Hurghada, it offers shallow and sheltered dives ideal for beginners, as well as sheer reef wall drop-offs and wrecks for more experienced scuba enthusiasts.

Located in a wide sandy bay, the beach resorts cater mainly to divers, windsurfers and families with children. The resort is also famous for its black sand dunes and mineral springs, which are thought to have specific characteristics for the remedy of rheumatoid arthritis and psoriasis.

Many liveaboard trips running out of Hurghada visit the best of Safaga's dive sites, particularly the wrecks. The busy commercial port has seen a number of ferry sinkings over the years, creating wrecks for divers to explore. This includes the Al Kafhain car ferry that capsized in 2005 close to Safaga's shore.



Salem Express
Image courtesy of Ned Middleton

The wreck of the Salem Express also lies near to the port of Safaga. This vessel ran aground and capsized in 1991 with the tragic loss of hundreds of lives. A controversial wreck to dive because of the number of lives lost, it nevertheless continues to be visited by many underwater explorers.

The marine life here is vibrant and varied. The centre of the bay is where you will find a beautiful, shallow coral garden perfectly suited for beginners. In other areas, more experienced divers can explore

many reef wall systems, where large pelagic creatures are often seen cruising by.

A protected marine area, Safaga's dive centres must comply with strict environmentally friendly procedures. Since 1995, local authorities, non-government conservation organisations and international bodies such as USAID have worked together to preserve and protect the underwater environment here. Regular monitoring ensures the presence of mooring buoys on all its main dive sites.

The best of the dive sites in Safaga include:

Abu Qifan: Famous for hammerhead sightings in late spring and manta rays during the winter months, this 300m-long, narrow reef has a plateau at its northern and southern tips.

Panorama Reef: One of the largest reefs in Safaga, featuring numerous grottos and overhangs, where gorgonians and soft corals thrive in nutrient-rich currents.

Al Kafhain: Lying at a depth of between 6m and 23m, this 115m-long ferry sank in 2005 following a fire on board en route from Saudi Arabia. The crew couldn't control the fire and subsequently abandoned the vessel, which sank at Sha'ab Sheer Reef. The ferry lies intact nearly upside down on the sea bed, with its bow wedged into the reef. Currents here demand an intermediate skill level from visiting divers.

Tabia Arbaa: translated from Arabic as 'seven pillars' (although arbaa means four in Arabic), this reef is characterised by its small coral pinnacles that rise from its shallow, sandy bottom. Blanketed in soft corals and gorgonian fans, Tabia Arbaa is home to a variety of marine life including glassfish, giant pufferfish, octopus, blue spotted stingrays, moray eels, lionfish, sergeant majors and several species of nudibranch. Sheltered and shallow conditions here also make it a great



Wake Up, Rise and Shine

A combination of waterskiing, surfing and snowboarding, wakeboarding is a popular watersport for enthusiasts who enjoy the instant rush of boat powered adrenaline sports. Sarah Adjani reports on getting to grips with the sport.



Just who is that cool dude cruising across the waves, gliding effortlessly on the water? Wow, I think it's me!

For those of us who believe we were given lungs and not gills for good reason, or for those of you who would like to take some time to enjoy the world above the water, wakeboarding may just be the coolest thing ever. It's like snowboarding – on the sea.

I must confess the idea of being pulled along by a speedboat while holding a piece of string may not appeal to all, but after just one day I was hooked (and not just to the boat!). As someone with absolutely no water sports experience, it is a great way to start out. For those of you who already know how to ski/snowboard...well...ahem, it should be a breeze.

I started on day one on dry land, learning how I was supposed to pull myself up and the position I should take when standing. The instructor showed me how to place my arms round my knees, push my heels down and allow the rope to pull me up. It all seemed very simple, on the beach, that is.

Onboard the speedboat I was helped into the jacket and put on the boots, known as bindings to the wakeboard crowd, which are attached to the board. A couple of minutes later I jumped into the water, rope in hand and waited for the magic to begin. It is hard to underestimate the power of the initial pull as the boat speeds up, and I watched the rope fly out of my hands on more than one occasion. The patience of my instructor was sorely tested, and a finger nail broken (my first wakeboarding injury).

Once I had got used to the force of the pull from the boat I was able to let the rope pull me to a standing position. I was so proud- I let go of the rope! Okay, not the most auspicious start, but within 15 minutes I was standing and allowing the board to do all the work. Once you're up, the idea is to turn the board to the side so you have a

leading leg, mine was the left leg, or maybe the right...it was all quite confusing!

People on the beach must have had a treat as we spun round, as all they could hear was the instructor telling me in no uncertain terms to pull in my 'derriere'. Keeping the rope low to the body and getting the correct standing position is the key to success. This proved unusually difficult for me, so I decided to have another go the next day. However, when I woke up the next day I was in agony. My shoulders felt like they had been torn from the sockets, which was apparently because of my vice like grip on the rope. My instructor told me to let the rope take the strain and not the body. Valuable advice!

It is hard to underestimate the power of the initial pull as the boat speeds up, and I watched the rope fly out of my hands on more than one occasion.

Day two was a whole different ball game. Remembering the instructions for getting up and more importantly, staying up, I managed to actually wakeboard for a whole minute! It doesn't look like much written down, but I assure you it was one of the best minutes I have had all year. Once I had mastered the art of letting the rope do the work it all seemed much more like fun. After a few more rounds I realised I actually looked pretty cool (even if I do say so myself).

Since then I have been out on the board several times and the improvement each time is huge, which is important if you have the attention of an ant (as I usually do).

The great thing about wakeboarding is it can be done anytime and in almost any weather. It is not a sport dependant on wind or water conditions and is just as much fun on a sunny day as on a cloudy one. This means it's an ideal Red Sea pastime, and most resorts will offer some form of wakeboarding. Be aware of areas that are reserved for swimmers and those for water sports, and always find a CDWS registered centre. I learned with Aquatic Vibes in Sharm el Sheikh.



Just who is that cool dude cruising across the waves, gliding effortlessly on the water? Wow, I think it's me!





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